ELEMENTARY ART TEACHING

1500 *Copies printed September*, 1890.
1500 „ *reprinted January*, 1893.

ELEMENTARY ART TEACHING

An Educational and Technical

GUIDE FOR TEACHERS AND LEARNERS

INCLUDING

INFANT SCHOOLWORK; THE WORK OF THE STANDARDS; FREEHAND; GEOMETRY; MODEL DRAWING; NATURE DRAWING; COLOUR; LIGHT AND SHADE; MODELLING AND DESIGN.

BY

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With over Six Hundred Diagrams and Illustrations.

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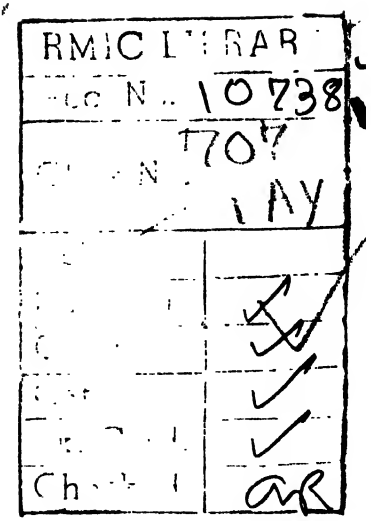
LONDON:
CHAPMAN AND HALL, LD.,
AGENTS TO THE SCIENCE AND ART DEPARTMENT.
1893.



LONDON:
PRINTED BY STRANGEWAYS AND SONS,
Tower St. Cambridge Circus, W.C.

PREFACE.

THE final determination to publish this work arose from the following incident. In 1884 I gave an address on art teaching to the Birmingham Teachers' Association. Shortly afterwards Sir James Crichton Browne, M.D., LL.D., F.R.S., visited our school of art, and on his inquiring whether this address was published, I lent him the manuscript. He returned it with a letter, from which the following is an extract:—'I have read it more than once with interest, edification, and complete agreement. I am able to recognise the physiological propriety of the methods which you recommend, and I feel strongly that this lecture, if published in a somewhat extended form and fully illustrated, would be of great public utility. You cannot convey to others that which makes your own teaching so inspiriting, but you can do something to set them on the right path and to save them from dangerous heresies, and this lecture would, I am confident, if published, be a lamp in the darkness which now pervades so many elementary schools.' In addition to this lecture amplified, there is included the substance of two addresses, one given to the students of the Birmingham School of Art in 1877, two months after my becoming Head Master, and the other to the teachers of

the Birmingham Board Schools in 1888, when the direction of the teaching of drawing was undertaken by the Municipal School of Art.

As this book deals only with methods of teaching and learning—with the lowest foundation work in each section—there will be found in it much which may appear self-evident, and but little to suggest the beauty of the subject. There is however, nothing but what I have had to explain, contend against, or fight for again and again during many years. It is the result of experience gained by actual work in the workshop and the studio, and by art teaching in schools of art, elementary schools, private schools, training college, &c. During the whole of my teaching career I have continued my own practice of art, and to this I attribute much of whatever measure of success may have attended the teaching. I venture to mention these things at the risk of being egotistical, as some justification for presuming to entitle this book as one for teachers and learners.

Our national organization for art education, although not faultless, has no parallel on the Continent, and its working and results have been keenly inquired into by successive commissions, who have recommended similar organizations for their own countries. It began its work when industrial art was dead in England, although surviving as a vital force in France and Germany. Even in the year 1851 industrial art had scarcely begun to revive, for the illustrated catalogue of the great exhibition of that year, which gave illustrations of the best art work exhibited, is as a chamber of horrors in contrast to the art work of to-day. It had to create the instruments by whom the work was to be done, to send them to centres where no standard of art existed, and where

the seed sown was often hindered in its growth as much by the mistakes of the few who, while anxious for its cultivation, did not possess sufficient knowledge to give it wise nurture, as by the apathy of local magnates and the veiled or open opposition of vested interests.

The organization has had no small share in bringing about the present improvement in art, and although in this book its weak points only are referred to, it is not without due consideration of the fact that many things now possible and desirable are developments of the work already accomplished. Of late years it has had to carry, in common with elementary education generally, that great incubus—*payments on results*—a system also without parallel in other countries, and which is expensive, hurtful, and inefficient for its purpose. It cripples and even endangers the very life of real education, and cannot but impede the growth of special developments required by each locality. It fails to test the relative value of the education given, and considerably reduces the amount of this education by withdrawing from it a large share of the time and thought of the master. It is antagonistic alike to the prime motive of the organization and to the expressed desires of those who are at its head—that its work shall be such as is best suited to local wants.

EDWARD R. TAYLOR.

July, 1890.

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ELEMENTARY ART TEACHING.

CHAPTER I.

INTRODUCTION.

'CLEAR view, exact measurement, precise statement.' In a paper read by a manufacturer before the Birmingham Physiological Society this is stated to be the record of the history of science. It is certainly a most scientific definition of the primary objects to be attained in art teaching. For although there is a life, an individual expression, which grows out of this training (is, indeed, its ultimate object), and which should be looked for, nursed, and encouraged by the teacher, it only grows healthily in proportion as these powers of 'clear view, exact measurement, and precise statement' are developed by correct teaching; and although this eclective and assimilating faculty, this spiritual life, cannot be developed, analysed, or measured by scientific laws, neither can animal life, which is evolved of the constituents of the mineral kingdom.

Every means used and every system of art teaching should, therefore, be measured, in the first place, by this canon of technical training.

The means universally used for developing these powers are drawing with the pencil, drawing and painting with the brush, and modelling in clay. These have been adopted by common

consent, because they offer the least mechanical resistance to precise statement—the result of clear vision and accurate measurement. It is for this reason only that they are selected as the best means which can be employed for developing this power of art expression, instead of any more difficult medium which may afterwards be employed when the art faculty has been developed by these the easiest means.

This is technical training, but in the over-anxiety to make use of this art power in our manufactures by means of what is more generally known as technical education there is a possible danger, so far as art enters into the question—and probably the same applies to science—of the end desired by all being hindered in its attainment. To require the future engraver or chaser to begin his career by learning to see and express line and proportion by working on copper or silver with the burin is to take the more difficult and longer course, and the same with the wood or stone carver's chisel. The result must be a waste of both art and technical power.

All sound systems in England and elsewhere have selected these means because they are the best for teaching that art faculty which all desire to see expressed in manufactures. Art power should be first obtained by means of the easiest methods of expression, and practice in these continued concurrently with the attempts to express this power in more difficult material. The expression of this art power is avowedly the object of the more direct technical training, and, therefore, the more of manual skill without this the greater the waste, for while every art worker must possess some power of handicraft the reverse does not hold good, and the handicraftsman may work before any art power is developed in him. The money value of this waste, arising from misdirected manual skill in England alone, amounts to a fabulous sum.

Art power is difficult to teach although easy to learn, while the technical power is easier to teach and more difficult to learn.

To ensure that whatever goes by the name of art teaching shall also be the best means for securing 'clear vision, exact measurement, and precise statement,' should therefore be the first work of those interested in technical education, for much of this at present is little more than the mechanical teaching of a handicraft; and even where the true seed is sown it is too often taken up for testing payments on results to allow it time to grow; or it has been choked by weeds, for while sound teaching has been required by one hand, the other has permitted, and even encouraged (in order to save expense to the Treasury) a vicious amateur system possessing no standard of right and wrong, and without any artistic purpose, the results of which are too often unfairly pointed out as the sole outcome of the schools.

Ruskin says, 'The excellence of an artist as such depends wholly on refinement of perception, and that it is this mainly which a master in a school can teach, so that, while powers of invention distinguish man from man, powers of perception distinguish school from school.' 'All great schools encourage delicacy of drawing and subtlety of sight, and the only rule which I have yet found to be without exception is that all great art is delicate.' Our teaching should develop this delicacy, the result of subtlety of sight and refinement of drawing, as opposed to careless dash and false effect, but we must be careful to distinguish it from that which is commonly called delicate, for this word is too often applied to work which is, at the same time, admitted to be feeble, but which is really bad, false work—lines thin and wiry, but altogether wrong in proportion; light and shade laboriously hatched or stippled, but all wrong in tone; colour 'sweetly pretty,' but like nothing in the heavens above, in the earth beneath, or in the waters under the earth; work smooth and varnished, but expressing no one truth; ornament full of elaborate detail (whether conventionally or naturally treated matters not), but without any design, proportion, or motive. Real delicacy exists in all true work,

whether done by the silver point, so fine as to be scarcely visible to the naked eye, by rough tools in scraffito work on coarse plaster; in the fine but living lines of the best missals, in the large brush work of the frescoes by Michael Angelo; or in the finest cameo or the roughest modelling in terra cotta.

Long and varied experience, from the teaching of drawing in an infant school up to the higher walks of art, only confirms what I have held and worked upon for many years, viz., that art education is possible for all. Given a certain amount of general ability it is often an accident or association that determines in what direction that ability is exercised, and success is almost equally assured, whatever direction is taken. This theory is not based on school-of-art students only, for in many of these cases a predisposition may be assumed to have existed, but upon the pupils of grammar schools, training colleges, private and elementary schools, in which drawing is taught to all the pupils. There are certainly a few remarkable exceptions, in which this gift seems to be developed at the expense of every other faculty, but such cases are very rare, and not often ultimate successes, and it is possible to select the best all-round pupils of a school by the work done in the drawing-classes.

Art, if properly taught, has a great educational value altogether apart from the subject learned. It develops accuracy of observation, reasoning from effect to cause, a power of analysis, a love of the beautiful, a tenderness and susceptibility of mind, habits of neatness, an accurate, workmanlike use of the hand, and, in addition, is of value in the teaching of science and other subjects.

It is hoped that the teacher will find this book helpful; yet it must ever be remembered that the best of systems can only be interpreted by an enthusiastic teacher. Enthusiasm and admiration are essential for all teachers, but especially so for teachers of art. An honest but phlegmatic teacher may possibly succeed in giving a certain unintelligent manual dexterity—a

'doing as you are told'—but he will fail in awakening that interest necessary to bring the imagination into action. This is seen in general education: one teacher will develop in his boys only a kind of passive mechanical accuracy—no spirit of inquiry or independent thought—none of that dreaming, which is so large a part of our nature. Another, while equally accurate, will draw out and make use of the idiosyncrasies, the likes and dislikes, the leanings of his boys, and thus arouse a faculty of much higher value in human life than mechanical accuracy. I am led to believe that the main cause of this difference is that in the latter case the teacher has imbibed a sufficient love of learning to continue a student through life, while in the former he has only learned just enough to serve his purpose in the subjects he has to teach and there stopped. In art teaching certainly this will account for the difference. A teacher who does not also remain an art student soon loses his power to teach for not only do his ideas and methods fossilise and fail to awaken interest in the pupil (for he being no longer a student cannot enter into the mind of a student), but a retrogade movement sets in, which begins by perverting his judgment as to a standard of right and wrong in the work of his students, and ends in the teacher himself being unable to draw. Collective teaching by illustration on the blackboard, so strongly advocated in this book, is often sufficient to prevent this retrograde movement in the teacher.

Collective teaching of drawing from the blackboard is too rarely used in elementary schools, and was allowed to die out in schools of art. Some few years ago there were no lectures, no demonstrations, in the Birmingham School of Art; while now there are twenty-six courses of weekly lectures delivered at the central school alone, and similar courses are given at the branch schools of art. It certainly seems extraordinary that teachers of drawing, though honestly trying it, were not convinced of its usefulness until after a long experi-

ment, even in such subjects as freehand, geometry, perspective, machine and architectural drawing, for its advantages are so self-evident that but for this fact it would seem superfluous to advocate its adoption.

It enables much more teaching to be done. The motives and object of the lesson are stated once for all, instead of being repeated to each student, which latter is an impossibility in a large class, the lesson in such cases being little more than the giving out and collecting of examples, and these generally from a set of copies, each one of which differs from its fellow in subject, style, and degree of difficulty. I have known large classes in which the teacher occupied his whole time sitting at a desk giving out copies, paper, and pencil, and collecting the same. Collective teaching even allows more time for individual supervision, for if the principles on which the example is based are explained, the drawing carefully built up in due order on the blackboard, and attention given to see that the pupils follow intelligently, their errors are so few in kind that they can often be classified and illustrated on the blackboard.

Several other advantages result from this method. The pupils see the master at work—it is saying to them 'Come,' instead of 'Go;' it is teaching, instead of merely allowing the opportunity of practice.

The pupils learn to draw with knowledge (for the work to be done is gradually developed before the pupils), instead of to practice unintelligent copying—there is a world of difference in this—and a common art language is established between teacher and pupils which is impossible by the mere copying of separate examples. It keeps the teacher in touch with his class, enabling him to enter into the mind of the pupil by himself grappling with the same difficulties as beset them, for, though they are less in degree, they are ever present with us; and, while thus keeping his art conscience right, these difficulties will also serve as texts for explanation, by which he can keep up the interest

of his class. By this means only can the why of every 'do' be explained, and when this 'why' is grasped by a class, what a new world is opened to the pupils!—you can see it in their faces—and what a weight of trouble in endless repetitions is spared the teacher! Its value to the teacher by giving him sufficient practice to keep alive his own art instincts we have already pointed out. Collective teaching is equally necessary in freehand, geometry, perspective, sciography, ornament, and design, and can, though with important modifications, be applied to the teaching of model drawing, light and shade, and to all the higher work.

Some have attempted to prove that model drawing can be taught collectively on exactly the same lines as freehand. I shall deal fully, when treating of this subject, with the modifications which I consider so necessary, and will here only point out that, as no two pupils see the model from the same point of view, and, as a result, no two drawings, if correct, can be alike, great harm is done by the attempts made under some systems to teach this subject on exactly the same lines as are so desirable in the teaching of freehand drawing, &c., for these difficulties are not overcome by the methods adopted.

Careful gradation of work, according to the capacities of the pupils, is most essential. Without this the pupil will either be disgusted by his failure to reach to any measure of success, and give up in despair, just as a horse refuses to try if it has made up its mind that it has behind it a load impossible to move; or a vicious standard of right and wrong will be formed which will take years to eradicate. There is a constant tendency to set an example, as if the purpose were to show to the class how cleverly the teacher can draw it, or a group of models, or problems in geometry and perspective, to evidence his ingenuity, and the same failing is seen in an examiner new to his work. This always evidences a lack of power or of will to enter, as it were, into the mind of the student, without which all teaching must fail; and also want of grasp of the whole course of which

the lesson is one item. A pupil, as a rule, only sees before him an isolated task, to be rendered anyhow, so that it is well accomplished. A teacher sometimes is also content with this, while others, in addition, are anxious that it shall be done in the right method, but still as an isolated study; while a thoroughly trained teacher will see it as one link in a long chain of studies, and judge it in its relation to all which has gone before and to all which has to follow.

Remember to tell the students of good points in their work as well as failures, and to explain why and in what respects they are good. Nothing will help more to direct the pupil aright, apart from the encouragement given thereby. This, however, is something very different to indiscriminate flattery. An art master—a good artist and an earnest teacher—asked me to see him at work in his school of art, as he could not understand why his efforts were not more successful. At the visit I could not detect any weakness, but thought over the matter when at my own teaching, and then remembered that in my friend's teaching I had not heard any mention of the good parts of his students' work, it was all correction and complaints, and for the first time I discovered the method I had practised for years without knowing it. Quite unconsciously I always first see and enjoy any point of good in the work before me, and naturally exclaim on this, pointing out why and in what respect it is right, thus making it a means of education, afterwards passing on to the imperfections and making use of them in the same way. Not only is more teaching given by this method, but I am able to condemn the bad work in a much stronger manner than my friend dared to do, as the commendation and explanation of the good work had made this possible without unduly depressing the student. This method also helps to create among the students a code of right and wrong, which effectually banishes all displays of shallow cleverness and imbecility.

In art teaching never use *à priori* arguments. Whenever

reasoning is necessary let it always be from effect to cause, never from cause to effect. This is the basis of all the teaching in this book. Dogmatism is a sign of imperfect knowledge and limited experience in teaching. We should early learn to distinguish between truths and the varying ways and degrees in which any one of these truths may be expressed in art. There are many *rights* in art.

Any system is bad which suppresses the individuality of teacher or student. One system provides for every working hour for fourteen years of the life of each of its hundreds of pupils, each and all alike without any consideration of varying powers and application. This is cast-iron like, instead of being elastic whether under compression or strain. We have tried to avoid this. The aims of each section are clearly stated and fought for in the first two or three lessons of each. The amount of practice necessary to enforce these is left to the teacher. Principles are laid down applicable to all future work, and rules avoided which are of only partial application, and which have to be modified or contradicted as the student advances.

Objections are made in the several sections to what, I venture to think, are bad habits and rules, but there is one point which, as being applicable to all sections and of the utmost importance, should be stated at once. It is absolutely unnecessary and most hurtful in every way for the pupil to lean over his drawing or painting so as to bring his eyes near to the paper. In small scale architectural or machine drawings, engraving on copper or steel, die sinking, &c., it may be necessary to do this ; but these form no part of an educational course in drawing.

All the work done by pupils should be on so large a scale that in a sitting position before a desk of the usual slope or before an easel there shall be no necessity to bend the back by leaning over the work. The examples also should be of such a scale in their smallest details as to be easily and completely seen in the same upright position.

The physical importance of this upright position has been strongly urged by the medical profession. Both educationally and artistically it is an absolute essential. All work done with the eye so near the paper that it cannot conveniently see the whole drawing while doing any part, however minute, is worse than useless—is fatal to the artistic whole. Nay, the more the finish required, especially in light and shade, painting, and modelling, the greater is the necessity for the eye to be so far away as to grasp the whole study; while in geometrical drawing and its cognate studies a large scale of work is always insisted upon by geometricians.

The bad habits formed in writing and the kind of outline required by examiners in freehand, model, nature drawing, &c., are doubtless the causes of this most injurious practice, which is not only artistically wrong and also bad for the spine, but highly injurious to the eyes, and yet is so universal that it seems as if it will be several generations before it is eradicated. If the practice of sitting upright and well away from the study, whether it is in line, tone, colour, or modelled, is insisted upon by teachers, it will do much to settle for us those vexed questions of finish, lining-in, stippling, smoothness, &c., which now too often usurp the place of artistic education; will also ensure a higher technical skill by exercising the wrist and arm instead of merely the tips of the fingers; and will save that mental and physical weariness which is too often caused by the strained positions generally adopted in reading and writing, and which are too often continued in the drawing lessons. Whenever possible, let one student in each class stand before a spare blackboard and make his drawing in chalk as large as possible, without resting his hand on the board, thus necessitating drawing from the shoulder.

This book treats mainly of such drawing as it is both desirable and possible to teach in elementary, grammar, and private schools under existing conditions of teaching power, lighting,

and apparatus; the subjects treated of in the later chapters only, requiring special lighting, &c.

With the exception of the work for the infant school and Standard I. this course is especially suitable for school of art teaching.

The school teacher well versed in his subject is the one best fitted to teach drawing, for there is nothing in the subject itself which necessitates exceptional treatment. The general training of teachers, their practice in the art of teaching, their greater control over the pupils, and more intimate knowledge of their abilities and characters, are invaluable, and are generally wanting in any specialist giving occasional drawing lessons only. The science of teaching art has, however, formed no part of their training; they have had no method lessons in this, as in other subjects, but have only been crammed through an elementary examination in executive power. If, therefore, their training has hitherto not been productive of the best result, it is no fault of the teachers. They have in this subject been handicapped in the race with other nations, and have been blamed for not making bricks without straw.

It is necessary that we should work with the faith that every boy, and girl too, can be taught drawing, if we begin early enough, as easily as they can be taught any of the ordinary subjects, the degree of success depending only on the general capacity of the pupil. We do not ask if children can learn to read and write, but we make them learn those subjects according to their abilities.

As in all other lessons, the awakening of and maintaining the interest of the pupil must have the first consideration, and in drawing this can be secured by an intelligent teacher without relaxing the training. It can indeed be made so interesting as to be welcomed by both teacher and pupil as that change of work—in kind—which constitutes the best rest from and preparation for the more severe lessons of the day.

This course meets all the requirements of the new syllabus for elementary schools. To require, however, successful light and shade teaching in our elementary schools is to demand an impossibility under present conditions of rooms, lighting, &c., and may do much harm. A more thorough course of solid geometry, including the simpler cases of developments of surfaces, interpenetration of solids, and projection of shadows, or even elementary modelling or flat washing, could be taught with greater ease and certainty of result, and these subjects would prove more useful to the pupils generally in after life, and also at the same time be a more thorough preparation for any future art work.

The classification of the children for drawing is unfortunately at present not coincident with that of the other subjects. The necessity for this arises from neglect in the past, and it will continue until drawing is made a compulsory subject in all schools, as children now come in from other schools where drawing is not taught and have to be put in lower standards for this subject. We think strong efforts should be made by teachers and by those who have the framing of the code, to make it possible for the drawing standard to be one with the standard for the other subjects, for until this is so, drawing cannot be said to be thoroughly amalgamated with the ordinary work of the school. The earlier work in each standard in this course is so arranged as to lessen, as far as possible, the necessity for placing children who are in high standards for general work, in lower standards for drawing.

The illustrated syllabus of the code is already misunderstood or is misused. It is taken as illustrating a system, whereas it is only examples of the lines on which the results of a system can be tested, and, as a consequence, in some schools the lessons are little more than constant and uninteresting repetitions of the examples given in the syllabus, with a view to the examination day. This tendency to cram, although not

inherent to a system of examination, yet in practice so generally follows, that it is eating out the life of real education. Not a moment must be lost, not an item of knowledge be given which is supposed to be outside or beyond the examination ; all those side issues which spring up in the mind of an intelligent teacher during a lesson, and are of such interest and relief to a class, must be shut out, and even training which evidently leads up to and is admitted to be the best preparation for the work of the examination, is apt to be pushed on one side for want of time, and short cuts take its place. However, a better day is dawning.

CHAPTER II.

INFANT SCHOOLS.

It is here that the likes and dislikes of the children are formed, and it is perhaps in these schools that the value of methods is most appreciated and understood. The work done is no longer like nauseous medicine to the children, but is good healthy food. No one can see a headmistress of one of these schools in charge of her little army without feeling the importance of the work, and that among these teachers are some of the noblest of our women. They now make the work palatable instead of irksome, and this in spite of needless restrictions and without many of those aids which can be made available for developing the observing and reasoning faculties as distinct from memory only. It is in this light that the drawing we would introduce should be viewed. Drawing and cognate studies should occupy one-half of the time in the infant school, less time on entering the boys' or girls' school, decreasing again as the last years of school life are reached, to be again increased in secondary, technical, and art schools after the ordinary school course is finished. The general practice is the reverse of this, neglecting, as it does, this teaching during the time when the training of the child's mind and hand should begin (being uninfluenced, the one by the tax of monotonous memory work, and the other by the cramping involved in learning to write), and the beginning is only made after the best years are gone by, and when the pupil's time is crowded with other subjects. 'Technical training

must have a good foundation laid in the infant school, and in the lower classes in the boys' and girls' schools, and not wait until the sixth standard is passed.

The Kindergarten system has made headway in this country of late years, but we show how little we understand the principles which underlie its teaching by not carrying them out in the work of the higher classes. Drawing will make easier the general work of the infant school, for it is less difficult to teach drawing than to teach reading and writing, and prepares the way for these subjects. To begin a child's school life by teaching to distinguish form with constant sing-song repetition of A A A A, B B B B, &c., and by writing countless straight strokes and pothooks—all leaning, too, in one direction—is a dreary, unmeaning, and horrible torture to both teachers and pupils. It is a wonder that either teacher or child has patience, and that disgust is not the result of it. Reading and writing, linked with drawing taught in the manner indicated in this and the following chapters, are more quickly learned than if the time given to drawing were devoted to these subjects. This is a well-ascertained fact, and, indeed, a self-evident one, for in writing the child has to learn to see form and to copy it (in fact, to learn to draw), and has placed before it forms unmeaning, difficult, and ugly, and without any consideration of gradation of difficulty.

One limit I would impose in the infant school and in the earlier standards: the forms should all be treated in the flat—diagrammatic. This diagrammatic treatment is the language of infancy, whether of nations or of individuals. It required all the ages to the fifteenth century of our era to master the laws of foreshortening (what we know as model drawing), and this knowledge was only evolved from the love of and practice in beauty of line and colour. It has become the fashion indiscriminately to condemn all teaching from the flat, but this outcry was raised against the copying of lithographs and chromo-

lithographs when the pupil by previous training should be equal to the more intellectual work of drawing from casts, models, or nature.

EXAMPLES CUT OUT OF CARDBOARD AND TO BE USED ON SLATES.

I experimented with these forms many years ago, and publicly advocated their use in my address to the Birmingham Teachers' Association in 1884. They are not intended to be drawn from, but to be used by the child placing one on his slate and running his pencil round it. By this means a child can begin the subject earlier (as soon as he can hold a pencil); he acquires real wrist power, not merely the cramped and limited power over the fingers, as in writing, and the subject is made interesting from the beginning. The *earliest* exercises under the Kindergarten system on squared paper (see page 30), and also those in our English system, are more difficult and more monotonous, tending to weary and disgust the child at the very commencement, and at the same time do not develop the wrist power in its fulness and variety.

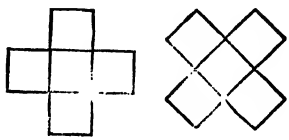
The following classes of forms are suitable for this purpose :—

(*a*) Simple Geometric Forms. (*Plate I., Figs. 1 to 13.*)

The names of the figures—triangle, square, &c.—should be taught (nothing more), and the children should be allowed to place the forms in any position on the slate, keeping them steady by placing the fingers of the left hand firmly on them while in use. This teaching of form in concrete instead of by abstract lines will be a valuable aid in the after-teaching of geometry. Many teachers of geometry know how difficult it is to teach the child that the position of, say, a right-angled triangle, as generally shown in the textbook or drawn on the board—one edge vertical and another horizontal—has nothing to do with the properties of the triangle, and that

it is equally a right-angled triangle if all the lines are oblique.

(*b*) Geometric forms in combination (*Plate I., Figs. 14 to 27*), placed on the slate with the sides or with the diagonals vertical, thus :—



These exercises need only be a slight advance in difficulty arising from the greater complexity of the form and the limits as to position, but, in addition, the first efforts in freehand may now be attempted under conditions which give the greatest legitimate aid to the pupil. Having drawn round the form the child removes it, and adds the internal lines shown in the models. In this step, and also in many following ones, in which the value of the principle will be more fully seen, the earliest exercises in freehand drawing are made on a base *which is accurate*. All teachers of drawing know the method usually adopted in beginning to teach freehand drawing. A series of vertical and horizontal scaffold-like lines are first drawn across the paper, too generally at regular intervals, and having no relation to the lines of the example. Now, apart from the dirt and confusion which result from the efforts made by very young children to draw these scaffold lines, if one of these lines is wrong in position or in length the resulting drawing is of necessity out of proportion, although the pupil may exactly follow out the instruction of the teacher by drawing the curves in relation to these scaffold lines. The base, the substructure, is of necessity imperfect and inaccurate, and, therefore, the drawing built upon this must be inaccurate.

It will be seen that these and all following examples of this section can be used simply as further exercises in drawing round the forms only, or with the addition of the internal lines as freehand exercises, according to ability.

(*c*) Ornamental forms, with and without internal lines

(*Plate II., Figs. 1 to 19*). The pupil may repeat the form side by side across his slate, in *Figs. 1 to 3*.

The pupil should be required to fix the upright, or horizontal, position of each model before beginning to draw round it. This practice will be found of great value when the pupil is required to draw vertical and horizontal lines by freehand. When internal lines are shown in the model these should be drawn freehand after the outside form has been completed.

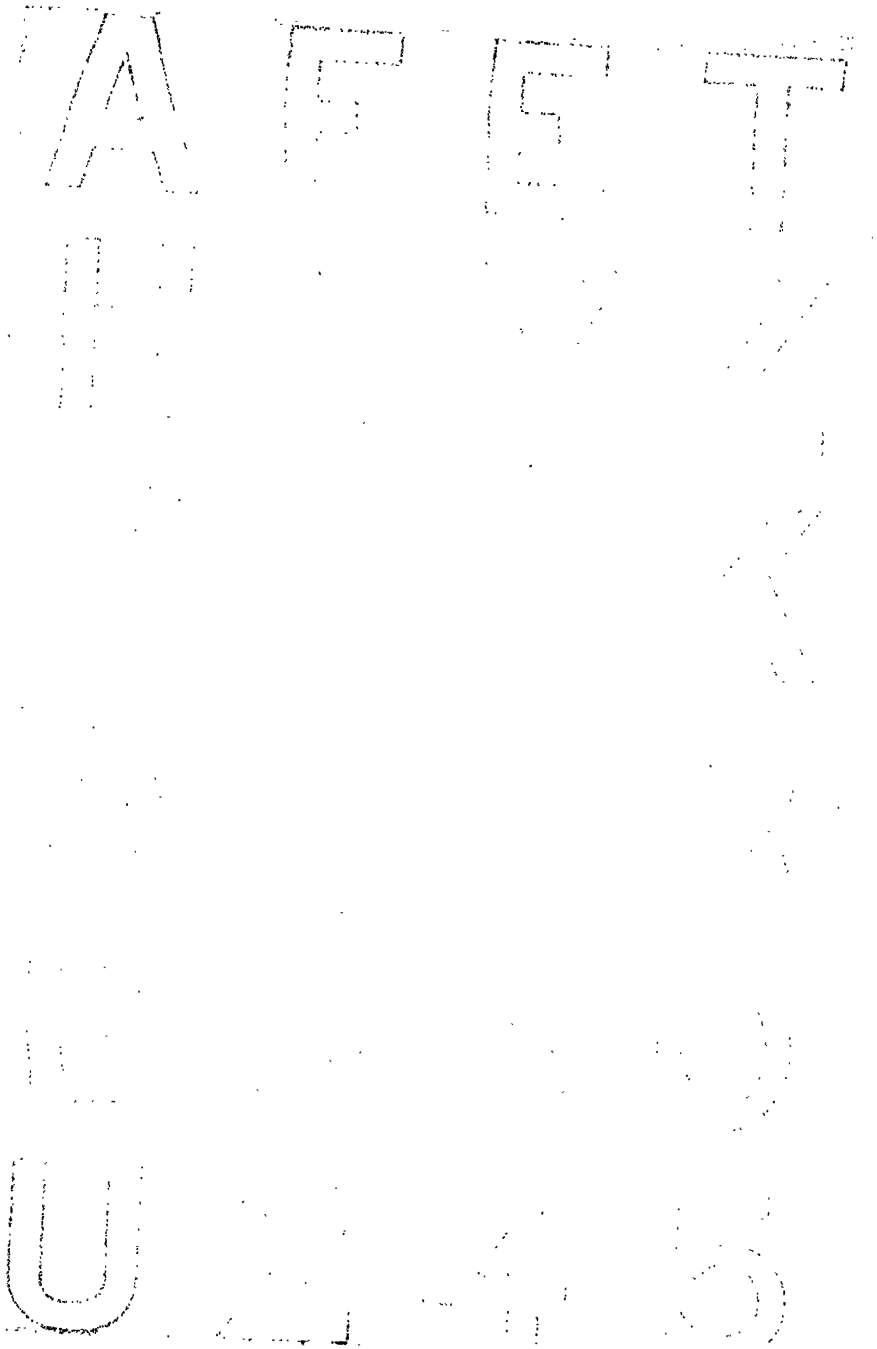
(*d*) Block letters and figures (*Plate III.*). These need no explanation.

At this early stage the first attempts may be made in flat tinting by means of parallel lines from *right to left* of equal strength and at equal distances. This exercise, which should be continued through every stage of an art career, is of the highest importance, and in this way it can be begun in a manner interesting to the pupil as contrasted with the methods adopted to obtain the same results in writing straight strokes and in the Kindergarten system. It has, as we have said, high art value, for it is the first effort to express mass in addition to line. Many of the forms in *Plates I., II., and III.* may be used for this exercise, several on each sheet being tinted by this means.*

The following renderings of the same outline will illustrate the distinction between expression of mass and of line.

(*a*) is the simple outline, (*b*) has the pattern covered with these lines, (*c*) has the ground covered with these lines. It will be seen that the impression conveyed by each drawing is different, the expression is changed, yet it is one and the same outline. (*b*) and (*c*) may be considered as concrete expressions, and (*a*) as the abstract. This exercise is of the highest

* The plates being all on a reduced scale, the tint lines are correspondingly fine and close. The proper distance apart is shown in the diagrams on the opposite page.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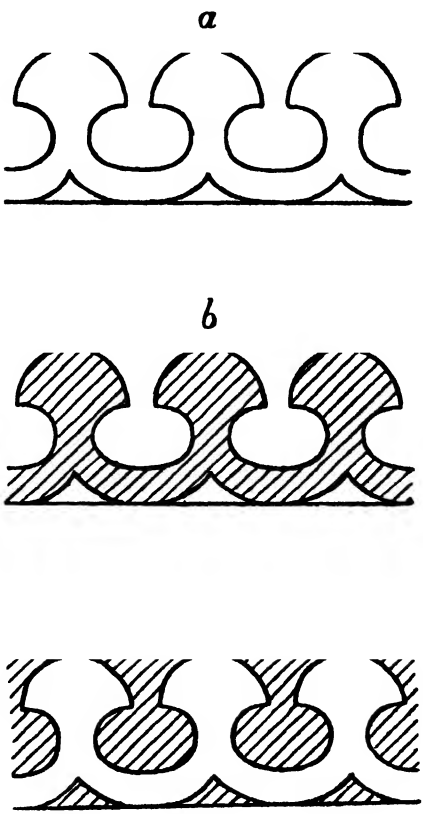
value in design; and if this practice is continued throughout the succeeding stages of freehand drawing, it will also prove to be a valuable aid in the teaching of light and shade from models and from the cast. The lines should be drawn from right to left, as this direction is the easiest for the right hand.

Collective teaching by occasional illustrations on the blackboard will serve to keep up the interest of the class, and for this purpose it is not necessary that each pupil shall have the same form in use. The method of holding the copy and passing the pencil round can be shown on the blackboard, the teacher using any one example, and it can be explained that it is much easier to do this on the slate placed on the desk than on the vertical blackboard. The simple geometric forms can be rapidly sketched on the blackboard, and named one by one, the pupil having the form being required to put up his hand, and the method of flat tinting by lines can also be shown. These examples can also be used to teach children to cut out shapes. The form can be traced in lead pencil on a piece of cardboard, and then cut out with scissors. These cut-out forms would be found useful in large classes, where it is necessary to have many of



one example, also in the first lessons in Elementary Modelling (see chapter on Modelling). The set, full size (three to six inches), is published by Chapman & Hall, Limited.

In this first section of elementary work we gain the following advantages :—

(*a*) The study can be commenced at an earlier age.

(*b*) The exercises are such as awaken interest in the pupils instead of wearying by constant repetition.

(*c*) The power of wrist is well developed.

(*d*) The results of the pupil's first efforts have in them a great degree of rightness, and the first exercises in freehand are additions to forms which are correct.

(*e*) Curved lines can be earlier attempted.

(*f*) The first exercises in distinguishing mass from line can be safely undertaken.

CHAPTER III.

PREPARATION IN THE INFANT SCHOOL FOR STANDARDS I. AND II.

THE children who, in their early years, have gone through the course we have already sketched out, can very easily be prepared for Standards I. and II., which should be considered as the connecting link between the infant school and the boys' or girls' school.

The great evil of examinations, as we have already indicated, is that they induce teachers to substitute practice in the examples likely to be used therein, or others of equal difficulty, for a gradated system of instruction leading up to these subjects. This 'cram' is the longest and dreariest course, and, if the lines of the examination are shifted, which they should be if it is to be a real test of teaching, ends in disaster. In arranging the courses for each standard, we have kept the real requirements of the examination constantly in view, so that both teacher and pupil may ignore and forget them until just before the dreaded time comes round.

STANDARD I.

The infant school course has had for its objects:

(*a*) To make the pupil conversant with form by repeating

(*b*) To give mobility to the hand.

(*c*) To exercise the eye by the unaided freehand drawing of straight and curved lines as internal lines within forms which are accurately made by tracing round.

The aims in Standard I. are:

(*a*) To teach the use of rulers divided into equal parts for drawing and measuring straight lines.

(*b*) To teach the use of set squares for drawing certain angles or corners.

(*c*) To exercise the eye and hand in drawing similar forms without these aids.

(*d*) The names of right lines, angles, and of some geometric forms.

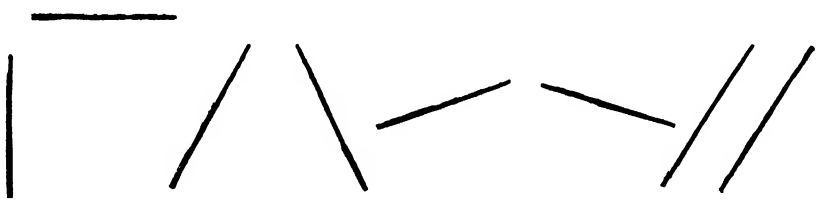
All the exercises to be worked on slates.

In those schools where the pupils have not secured the instruction of the first chapter, and the cardboard forms can be obtained, the first portion of the year should be occupied with these, especially the straight-lined geometric forms and combinations and the straight-lined letters, with a few of the decorative forms, the pupils drawing also the internal freehand lines from the beginning. These should be succeeded by the following course, the teaching being from the blackboard.

EXPLANATION OF THE SCALE OF INCHES, WITH PRACTICE IN DRAWING STRAIGHT LINES.

Insist that in this and in all drawing exercises the slate or paper be kept parallel with the top of the desk. If the children are allowed to turn their slates or paper the power to draw lines in any direction is not obtained.

Draw on the blackboard, vertical, horizontal, and lines slanting right and left and at varying angles, thus:

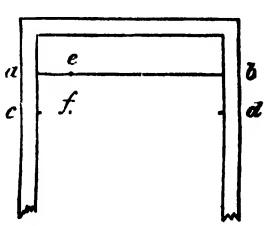


Let the pupils rule these in varying lengths of inches, so as to get practice in use of the scale. Explain that they are all straight lines, no matter what the direction; but that some are vertical (upright, straight up), some horizontal (flat, level), and all the rest oblique (inclined, slanting). A common error, which has most fatal results in geometry and perspective, should now be combated, viz., the use of the word 'straight' as a complete definition of vertical or horizontal lines. A similar error is the misapplication of the word 'perpendicular,' to which reference is made later on. It will require more time to root out these two errors than to plant many new facts, and sometimes the errors are confirmed, instead of being uprooted, by the misapplication of these words by the teacher. The teachers of plane and solid geometry, and of elementary and even advanced perspective, will owe a debt of gratitude to those who succeed in teaching exact definitions of these two words; but to do this will require constant repetition whenever these words are used. All know how much easier it is to teach a child new words than to eradicate childish or pet names he may unfortunately have been taught.

COMBINATION OF HORIZONTAL AND VERTICAL LINES.

(*Plate IV., Figs. 1 to 10.*)

It is of the utmost importance now to teach how to draw these lines accurately with such means as are at the command of the pupil. This can be done by measuring one or more inches from the top of the slate on each vertical side to obtain points *a* and *b*, through which the first horizontal line must be drawn with the ruler, and from this line measuring two other points *c* and *d* for the second



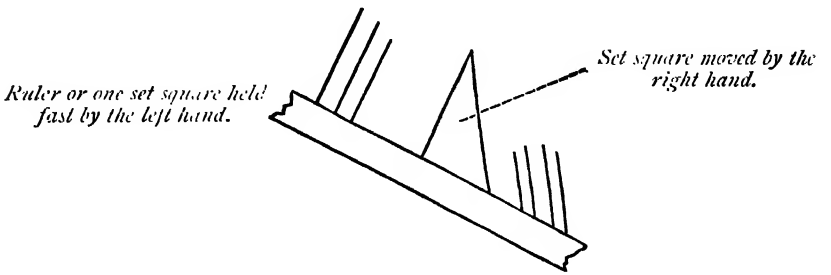
horizontal line. To obtain the first vertical line on the left measure a given inch or inches from the left side of the slate on each line, as *e*, *f*. From these points mark inches on each line, and join these points by vertical lines with the ruler. Vertical lines with short horizontal lines (*Plate IV., Figs. 6 to 10*) can be worked in a similar manner. In these lessons exercises should be given in freehand drawing, the dark slanting lines in *Figs. 1 to 10* to be so drawn without the aid of a ruler. It will be found that it is always easier to draw the slanting lines from right to left than those from left to right, both in ruling and freehand. Continue the exercises in flat tinting to distinguish mass from line, by lines from right to left, as shown in most of the diagrams on *Plates IV. and V.* The remaining examples on *Plate IV.*, and also those on *Plate V.*, show how much variety may be introduced into this very limited section so as to make it interesting to the pupils.

All may be used as ruling exercises, but only the simpler ones should be attempted entirely by freehand.

So far we have been dealing only with straight lines, their division by ruler into equal parts, and the three classes into which they are divided according to their directions, and, although we have in the exercises based on these lines and divisions constructed many geometric forms, parallels, and angles, we have not troubled the pupil with definitions of the relations of lines to each other. In this, as in all succeeding lessons, we try to put practice a little in advance of theory, the concrete before the abstract, the language before the grammar, the power to draw ornament before teaching its analysis, the power to draw objects before teaching perspective, the figure before teaching anatomy, and exercises in design and inventive drawing before teaching its theory and history.

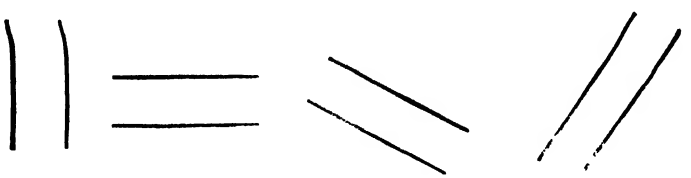
USES OF SET SQUARES WITH INCH SCALE.

Besides the ruler, the pupil is now to be taught the use of one or two set squares, and the teacher should also have a square, an oblong, an equilateral triangle, and an obtuse-angled triangle in cardboard. Much care and patience will be required to teach the pupil how to use the set square on the ruler, or one set square on the other, viz., to hold the one firmly with the left hand while the other is moved about as required with the right hand, as shown in the diagram. The method of using must be illus-

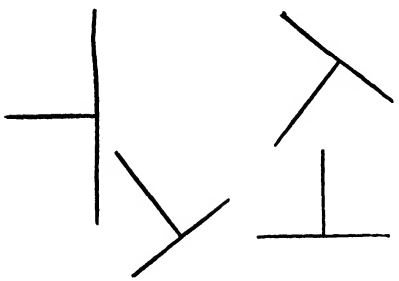


trated again and again on the blackboard, and, although it is easier for the pupil to do it on his slate placed on the desk than for the teacher to do it on a vertical board, it will require much practice, as it resembles the amusing exercise of trying to pat your head with one hand and at the same time rub your body with the other. *This is the difficulty in practice*; the ideas to be conveyed to the pupil are:—

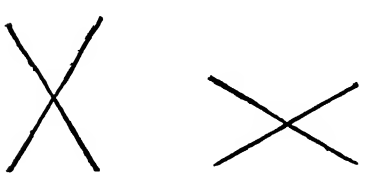
(*a*) That parallel lines can be vertical, horizontal, or slanting in any direction, so that they keep the same distance from each other throughout their length.



(*b*) To make clear the meaning of angle or corner. This is a difficult task, and can best be done by beginning with the right angle. Draw a line, and make a right angle with the set square at or near its centre, pointing out that the corners on each side are the same, and that lengthening or shortening the lines does not make the corner larger. This should be done on lines vertical, horizontal, and inclined, for any amount of trouble will be repaid in the after lessons if this is made clear.



The obtuse and acute angles, as being less or greater than a right angle, will not then be difficult of explanation, and all can be illustrated by the set squares and the cardboards, the teacher indicating that the triangles or squares may be lesser or greater (similar) without altering the sizes of the angles. Each kind of angle can be shown in contrast by lines crossing each other.



(*c*) In connexion with the right angle the word *perpendicular* should receive much attention. This word being so often used as meaning vertical, even by well-educated people, causes much trouble in the study of solid geometry and perspective. Perpendicular lines

should be drawn in every position on the blackboard, and care taken to explain that vertical, horizontal, and slanting or oblique lines can all be made into perpendicular lines, and that the term defines or explains the relation to one another of lines and surfaces. An open book or portfolio is the best model with which to illustrate angles to the class—the edge view to illustrate the angles of lines, the front view to illustrate the angles of planes and surfaces, and, at a later stage (in solid geometry), to illustrate the relation of lines perpendicular to planes.

(*d*) The square, oblong, and triangles should be shown to the class, then drawn *in various positions* on the blackboard and copied. This is important to prevent an error creeping into the pupil's mind that it is essential that one of these lines should be horizontal, because this is the position in which they are drawn in textbooks.

A selection should now be given from *Plate I., Figs. 14 to 24,* the straight-lined letters from *Plate III.*, and from similar forms which will suggest themselves to the teacher; also doors, windows, maps, &c. They should all be worked out by the ruler and set square, and the simpler of these forms only be drawn by freehand. In the ruled exercises it is the practice at present to limit the teaching and the Government examination to obtaining the angles by means of the set square, or by rulers on which the angles are marked, but there is another step between this and the purely freehand exercises which should receive attention, viz., the use of the ruler to draw the lines, while the angle or relation of the lines is determined by the eye. This exercise is, we think, intended by those who framed the code, and if carried out, we should have three natural and easy stages of work:—

(*a*) Lines and angles determined and drawn by aid of the ruler and the set square of 60° and 45°.

(*b*) Lines and angles drawn by the ruler, but the size of the

angle or the relation of the lines to each other determined by the eye.

(*c*) Lines and angles drawn freehand without the aid of the ruler.

In order to test the extent to which the teaching of exact definitions of lines and angles has been successful, some exercises should now be given reversing the process of thought. Instead of the lines being drawn and the definition required from the pupil, the definition should be written on the blackboard and the pupil required to make the drawing from this definition. The three following examples will be sufficient to indicate our meaning, and the teacher can make almost an infinite number of variations :—

(*a*) Draw a horizontal line four inches long. Find the middle of this line by your scale of inches, and from this middle point draw an upright line two inches long. From the top of this line draw slanting lines to each end of the horizontal line. Write down what you know of the shape, lines, and angles.

(*b*) Draw a slanting line five inches long in any direction. Divide this into two equal parts, and at the middle point draw lines on each side of the first line and perpendicular to it. Make each of these lines as long as half the first line. Join the four ends of these lines. Write down the name of the shape you have made, how many angles it contains, and the name of each angle.

(*c*) Draw a vertical line five inches long. From the upper end draw downwards and to the right a line of the same length as the first line, and making with it an angle of 60° (this is one of the angles of your set square). Draw a similar line from the lower end, also to the right, but upwards until it meets the line you last drew. What is the name of this shape and what kind are the angles ?

Putting on one side for a moment the practice in drawing which is gained by these exercises, they are of great educational

value, for the power gained thereby will be found to have a beneficial effect on the pupil's general studies. Every teacher knows how important it is that the pupil should early begin the practice of ascertaining for himself the full and exact meaning of any question. How many failures in answering questions arise solely from this habit not being acquired, and how difficult it is to teach it later in life. I know of no other exercise which so well serves this purpose by at once awakening the interest of the pupil in the immediate and tangible results of exactness of thought.

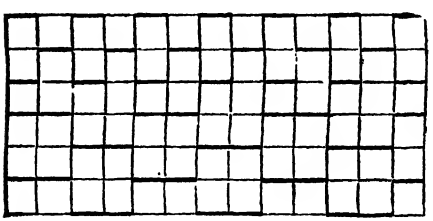
Whenever it is possible to obtain a squared paper copy-book, pencil, and rubber, for each of the older pupils in the infant school, the squared paper work of Standard II. should be carried on, and the slate work of Standard I. reduced in quantity.

CHAPTER IV.

STANDARD II.

SQUARED-PAPER DRAWING.

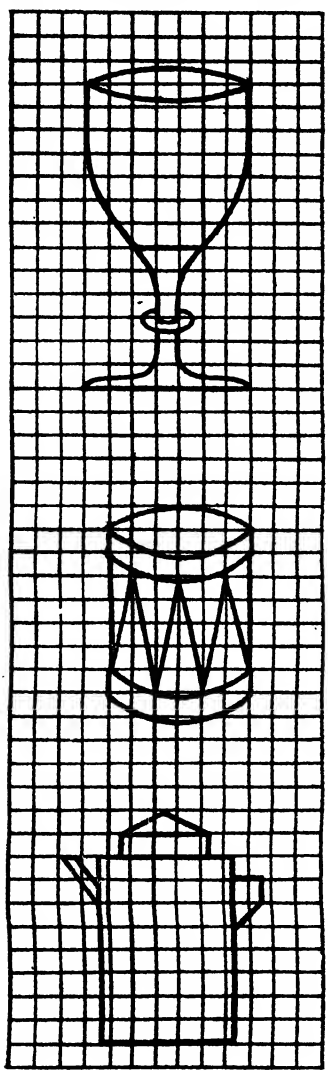
IN the syllabus this is the same as Standard I., only on paper instead of on slates, but, as every teacher knows to his sorrow, this is no slight difference. The slate and slate pencil are hard, and the lines are easily rubbed out, but the paper and lead pencils are comparatively soft and delicate, and the lines are not easily rubbed out. Every aid should, therefore, be given to enable a pupil to secure with moderate care a certain degree of rightness without alteration by rubbing out. The use of squared paper is the best means for securing this end. This method has been used in the Kindergarten system, but what few books I have been able to see contain many faults. For instance, the earliest lessons consist of filling pages with lines as shown dark in the diagram, or with similar exercises, the pupil being required to repeat hundreds of these lines close together.

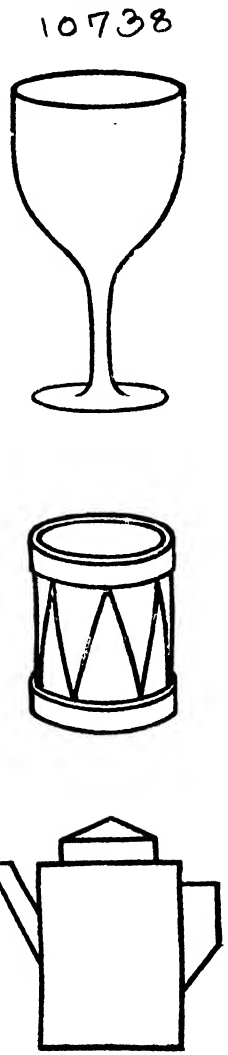


Now these are monotonous and uninteresting, tending to disgust the child with all drawing, and the work *is most hurtful to the eyes*. This provision for mere practice in lieu of intelligent teaching unfortunately runs through this and many other systems of drawing. The numerous drawing-books, sets of examples, and even diagrams, some good and some bad, are

too generally used as a substitute for intelligent and interesting teaching on the blackboard instead of being used to follow this teaching, or as an occasional variation.

Again, the examples in some Kindergarten books are radically bad in drawing. Those here given have been carefully





traced from one of these books, and alongside are given the correct drawings of the objects. Errors such as these taught as truths take a long time to eradicate.

The lines used to form the squares are generally too close together, being both cramping to the hand and hurtful to the eyes. The size of square used in *Plates VI.*, *VII.*, &c., is quite small enough.

The straight lines in *Plates VI.*, *VII.*, *VIII.*, *and IX.* should sometimes be ruled, but generally drawn by freehand, each line at one stroke, using an F pencil, *no indiarubber to be used and no lining-in allowed.* Even up to and including *Plate XII.* the indiarubber should rarely, if at all, be used. Let the children learn from the straight-lined exercises and from the simple curves on *Plate X.* that *whatever they do must remain.* This will be a great help to the teacher in judging progress, and is the only cure for so much radically bad work which is to be seen even in the sixth Standard and in schools of art.

All teachers know of the bad habit of drawing lines thus :— 

This is caused by want of early training in *directness* of work, by which not only is a technical power of expression best secured, but the mental power necessary to grasp the whole of the form at once is brought into exercise. All drawing is more or less a mental exercise, and the more the better. A line should be first thought out: its length, its shape, its relation to other lines indicated by as few points as possible, and then drawn from this thinking or memory. It should be the result of the memory of it, and not every quarter of an inch patched up by constant reference to the example.

The two advantages of the squared paper are that, from the first, a greater degree of accuracy may be reasonably looked for, and the work can be of a more extended and interesting character.

The blackboard should be ruled in squares with white paint, each side of which is two or three inches, and each line in the plates should pass through twice the number of squares on the blackboard to those shown on the plates. The pupil's drawings will thus be twice the size of the examples on the plates, which will be quite small enough.

A set of drawing-books is published by Chapman & Hall, Limited, to be used alternately with blackboard work, or as a substitute where the blackboard is not used. In these books the examples are drawn of the exact size on the left of each page, and the pupil has to repeat the drawing across the page.

Nearly all the examples on *Plates VI. to XII.* are exercises capable of being repeated, and they should be extended by repetition across or down the pupil's book, but no more than this. To fill a page with one example, as is sometimes done, is worse than useless. This limited repetition has several advantages. The repetition changes the character of the form, and thus the simplest principle in design is being brought into practice by the pupil. Another advantage is that it provides work for all—the most intelligent and industrious and those least so. One of the objections raised against collective teaching is that the clever ones are not kept occupied all the time, or else that the dull ones are left behind. Let each single exercise only occupy the class long enough for the cleverest and most industrious boy to fill the whole length of the line. The work, however, of those who are not so rapid will be complete as far as it goes. There is also an advantage to the teacher, for the work required to be done on the blackboard will occupy so little time as to allow the largest portion of the lesson hour for individual instruction and noting of prevailing errors. These latter should be illustrated by rough sketches on the blackboard.

Select for this Standard examples from *Plates VI. to XII.*

only. Many of the examples have a portion flat tinted. This addition to the exercise should, when possible, be attempted by the best pupils as an exercise for the hand, and because of the change in the character of the ornament from mere contrast of lines to contrast of masses.

CHAPTER V.

STANDARD II. (*continued*).

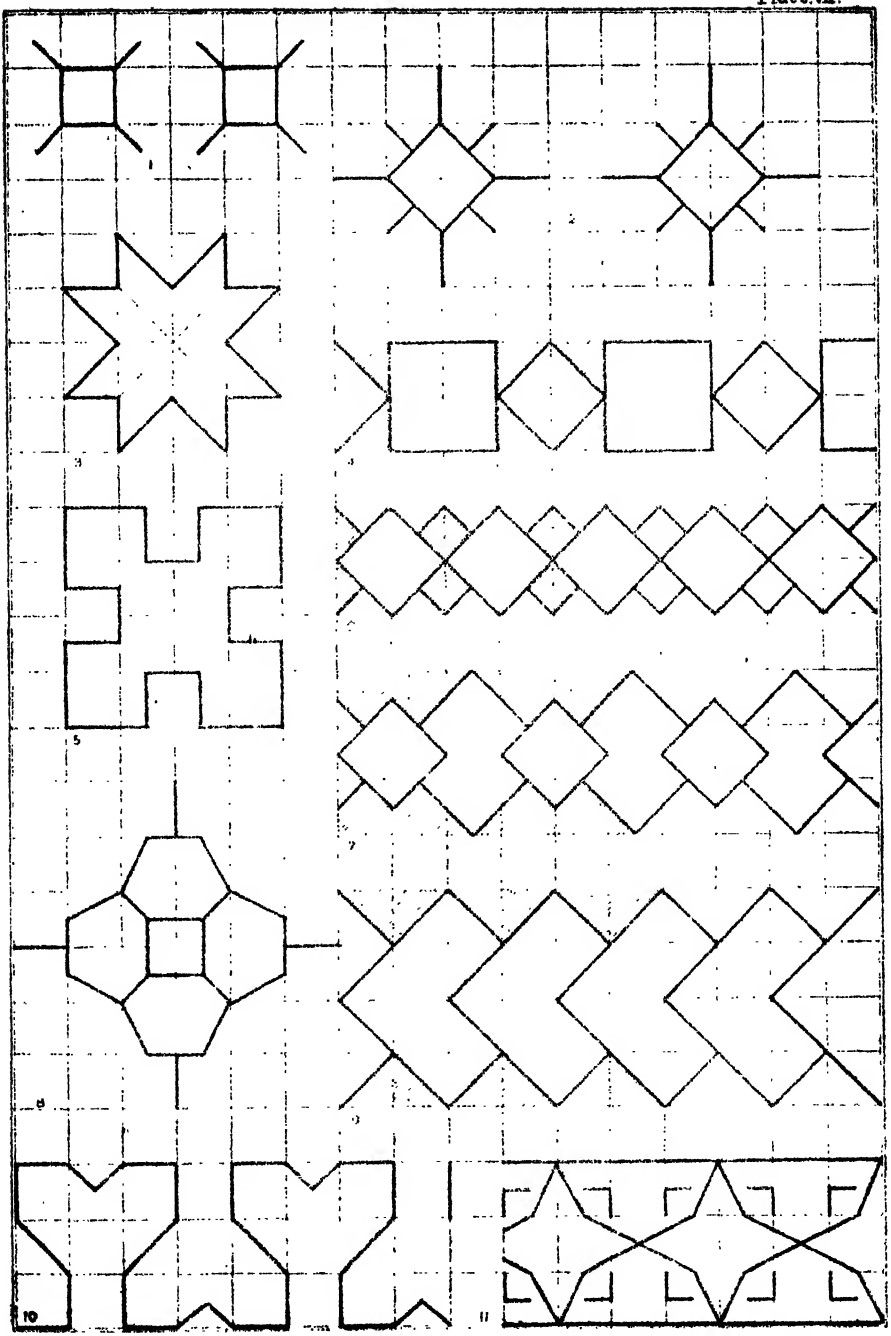
MEMORY DRAWING.

THE memory has hitherto been developed, in general education, in a mechanical manner, galling and disheartening to the pupil—the memory of sounds, most of which convey no meaning to the mind of the child, rhythm, and measure being the only educational aids employed. Memory drawing is rarely taught, and when attempted it is by placing before the class an elaborate copy of ornament or a landscape for a few minutes, and leaving the pupils to occupy an hour in drawing what they can remember of it. Let us see what is expected. The pupil has to analyse, to judge proportion, to grasp details, and to commit to memory sufficient of all these in a few minutes as shall occupy a whole lesson to draw. No wonder memory drawing is judged a failure! The Science and Art Department have, for over twenty years, tried to make this one of the subjects of the school teacher's D certificate, and after trying to make it easy by limitations in favour of the candidate, so that it became a cram of four objects only, and no test of memory at all, they have given up in despair, and substituted for it an examination in model drawing on the blackboard. And why? Because they demanded bricks without straw, results without any real effort on their part to teach the subject. Memory drawing should be begun at this early stage

of simple forms, either as a home exercise or as the first portion of each lesson. It should always be a memory drawing of the previous lesson and not of a drawing new to the child, and which has not previously been drawn. It thus becomes a memory exercise of the analysis or method employed—the proportion and the details having already been slowly and carefully studied by the pupil—instead of the Herculean task of attempting to discover all these in the few minutes during which the example is exposed to view. Remember, too, that, except after long practice, the memory is soon exhausted. Ten minutes will be enough to test the memory of an example which took an hour's lesson to explain and to draw. Be careful to see that the pupil has remembered the order in which the example was drawn on the blackboard in the lesson. This habit is of vital importance, and, if cultivated, will provide a ready means for testing whether the lessons have been understood, especially those on analysis in Standards IV., V., and VI. In these later Standards the memory drawing of the ornamental forms should be limited to the structural or main lines of the ornament as explained under these sections, with careful attention to proportion, all the minor details being left out.

Memory drawing, thus gradated, is easy to teach, and I have been astonished at the good results obtained both in freehand and model drawing. Its value in art cannot be overestimated; it is all important in design, while expression and motion can only be the result of memory study. The Japanese, who excel in these qualities, obtain their marvellous facility entirely by memory exercises; but to be successful it should be little in quantity, intelligent in the selection of essential lines, and careful as to proportion.

As the time for the examination in Standard II. approaches, some of the simpler exercises, such as *Plate I., Figs. 1 to 6 and 14 to 27; Plate III.; Plate V.; Plate VI., Figs. 9 and 10;* and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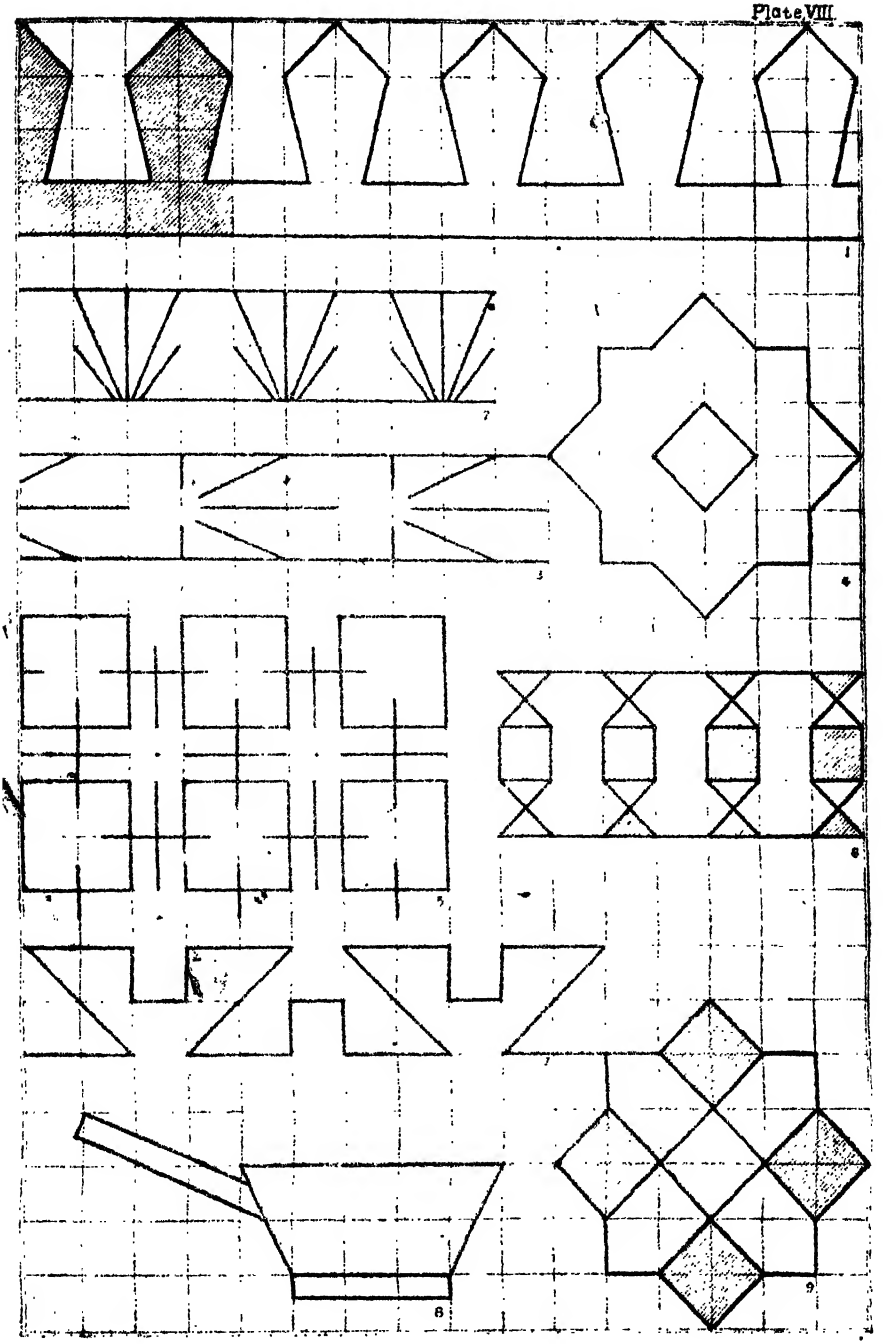
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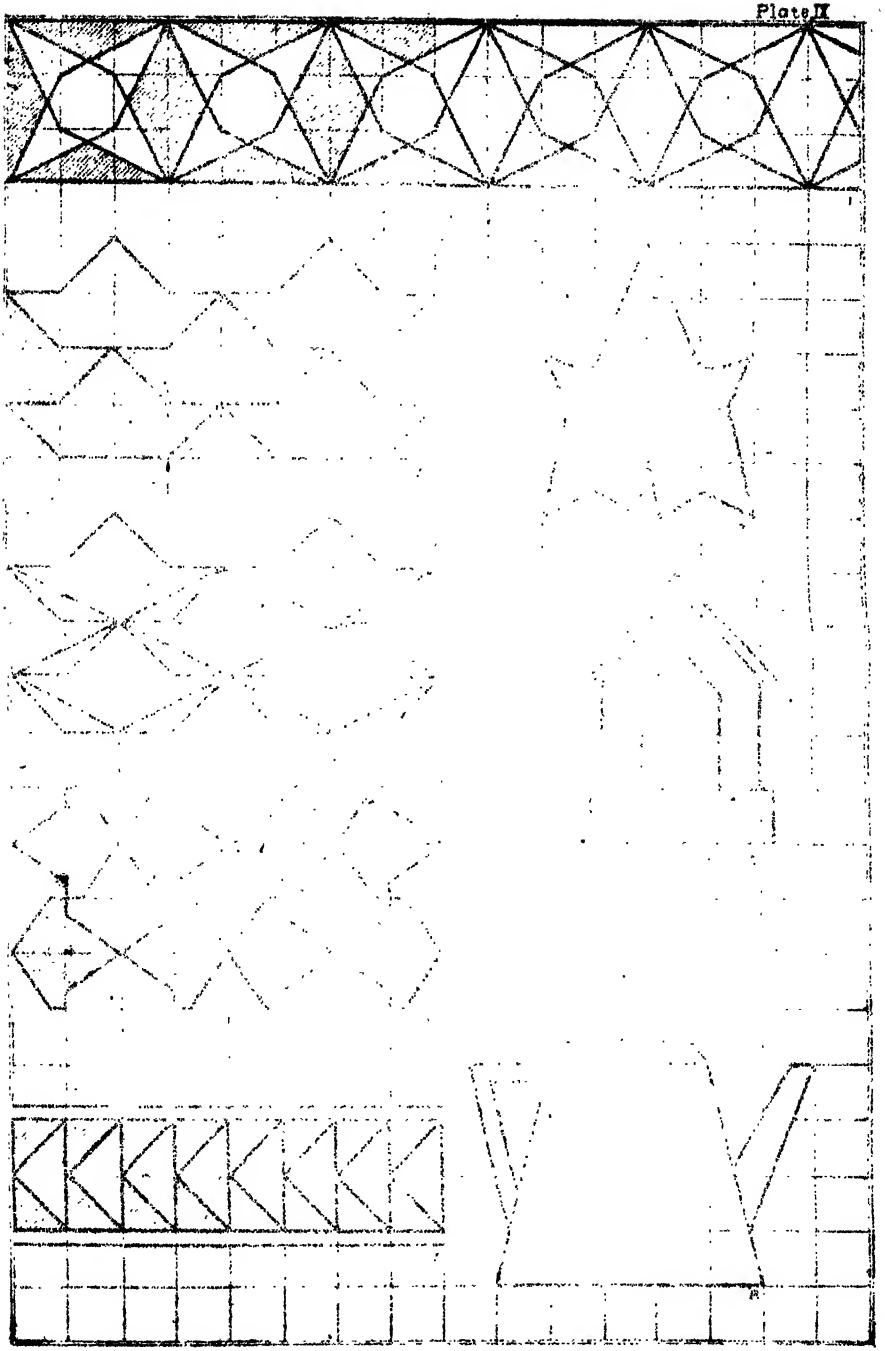

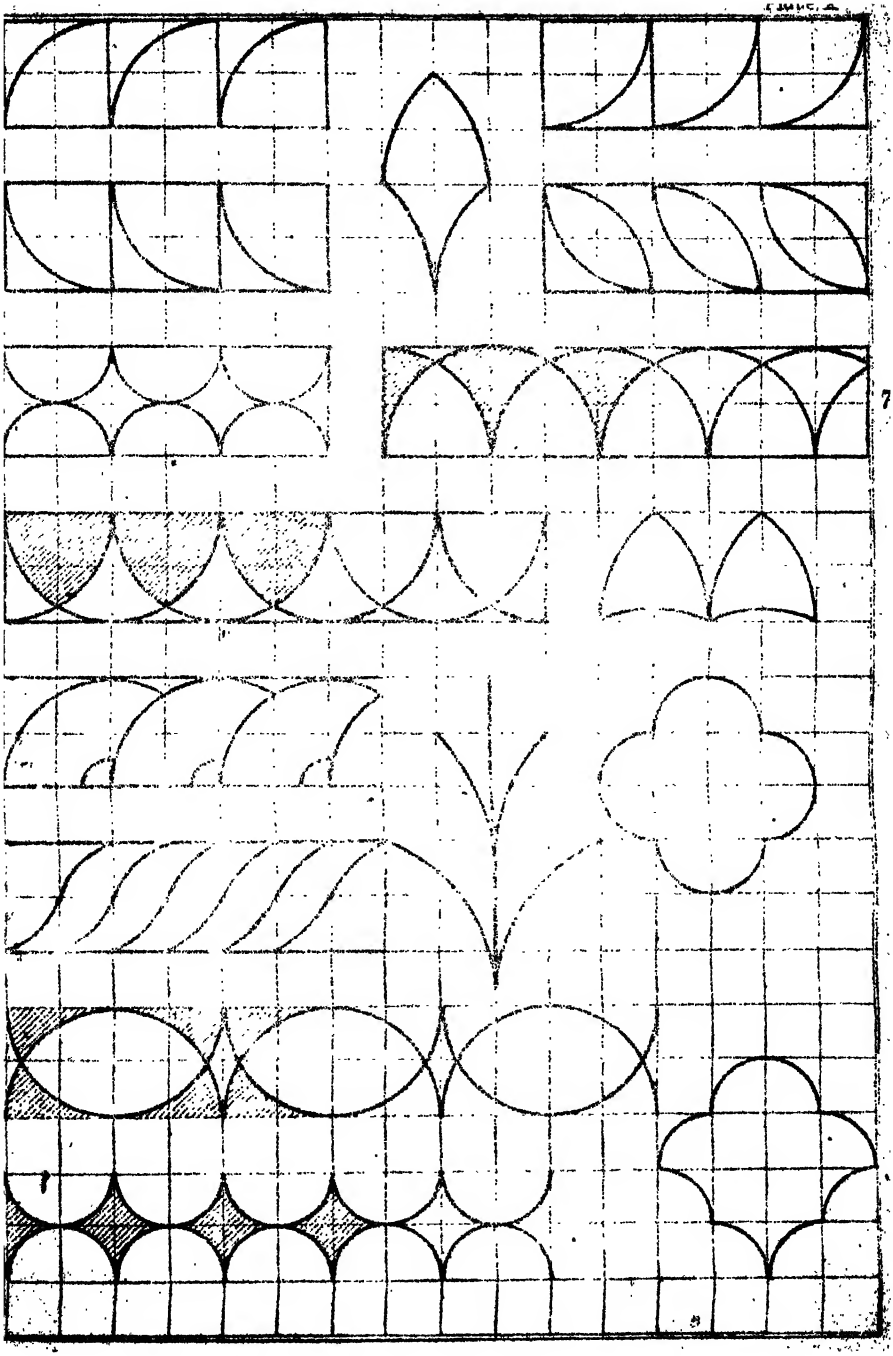

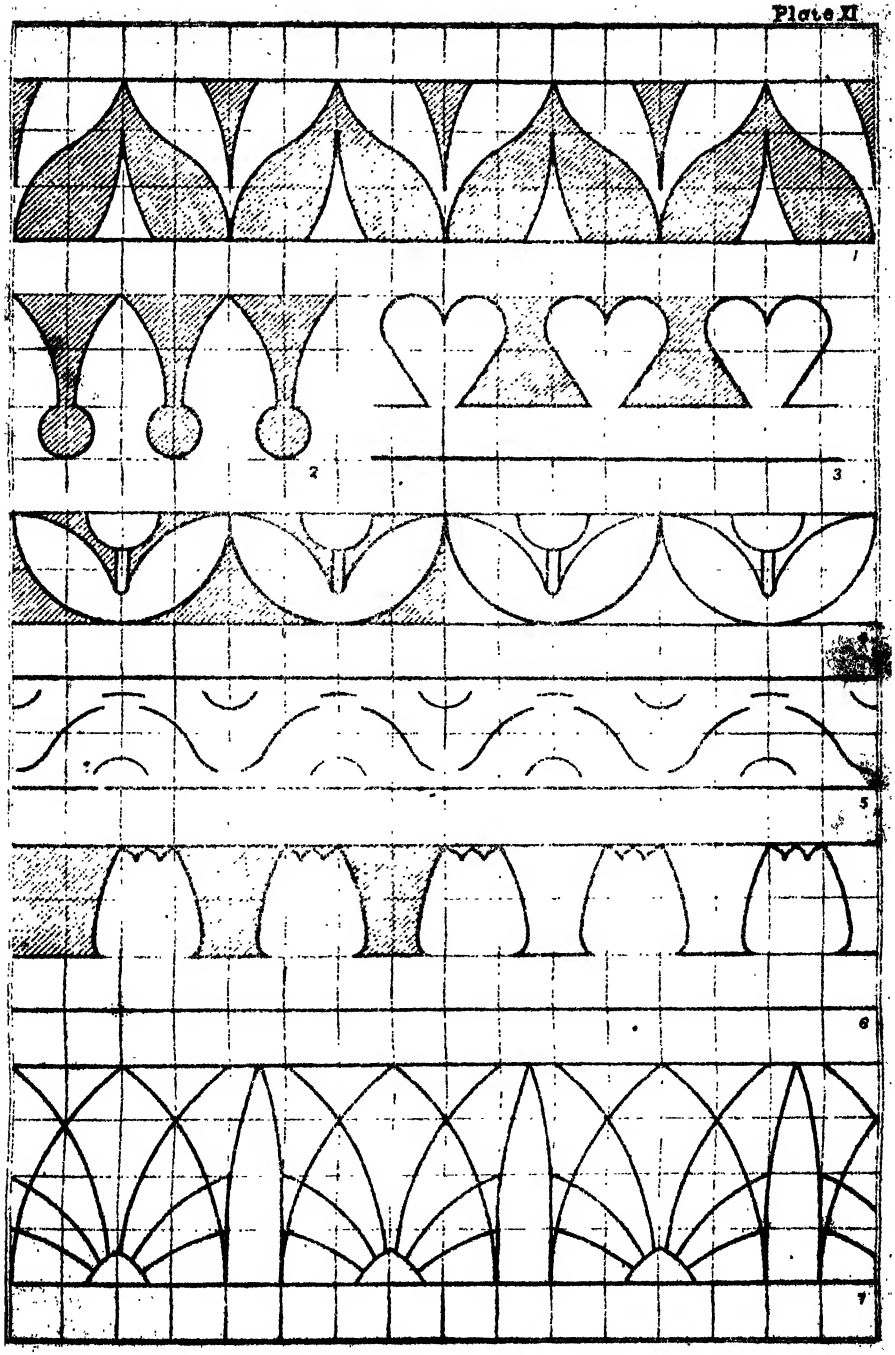
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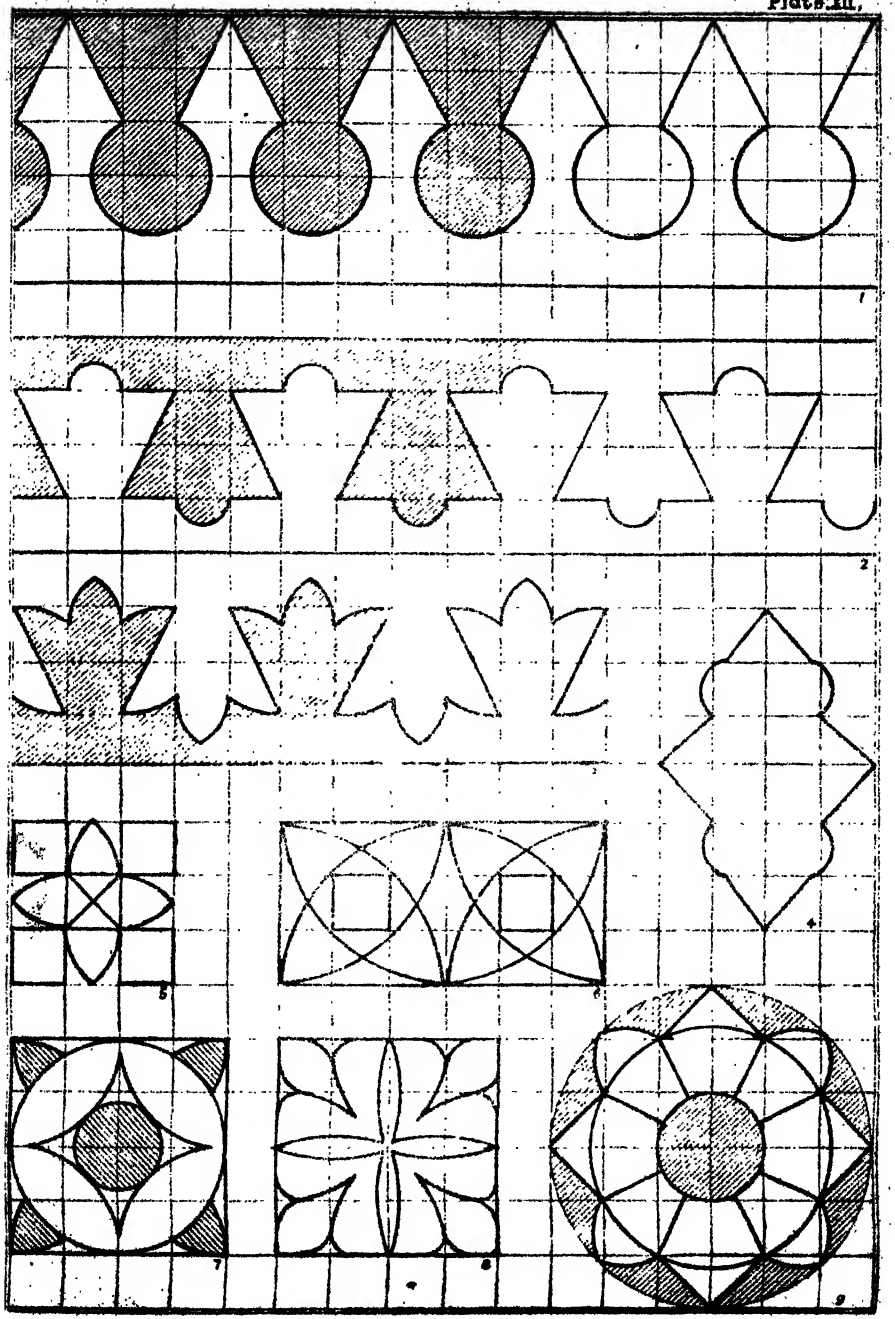
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Plate X., should be worked on plain paper, first with the aid of the ruler for straight lines, and afterwards entirely by freehand.

Such a course as is here laid down will not only prove more interesting to the pupils and have more value educationally than the monotonous repetition of the exercises in the illustrated syllabus, but will be a shorter and safer preparation for these examinations.

We have introduced exercises in curved lines in this standard on educational grounds alone (*Plates X., XI., XII.*), but they are already indicated in the schedule prefacing the illustrated syllabus, and, therefore, may at any time be introduced into these examinations.

CHAPTER VI.

STANDARD III.

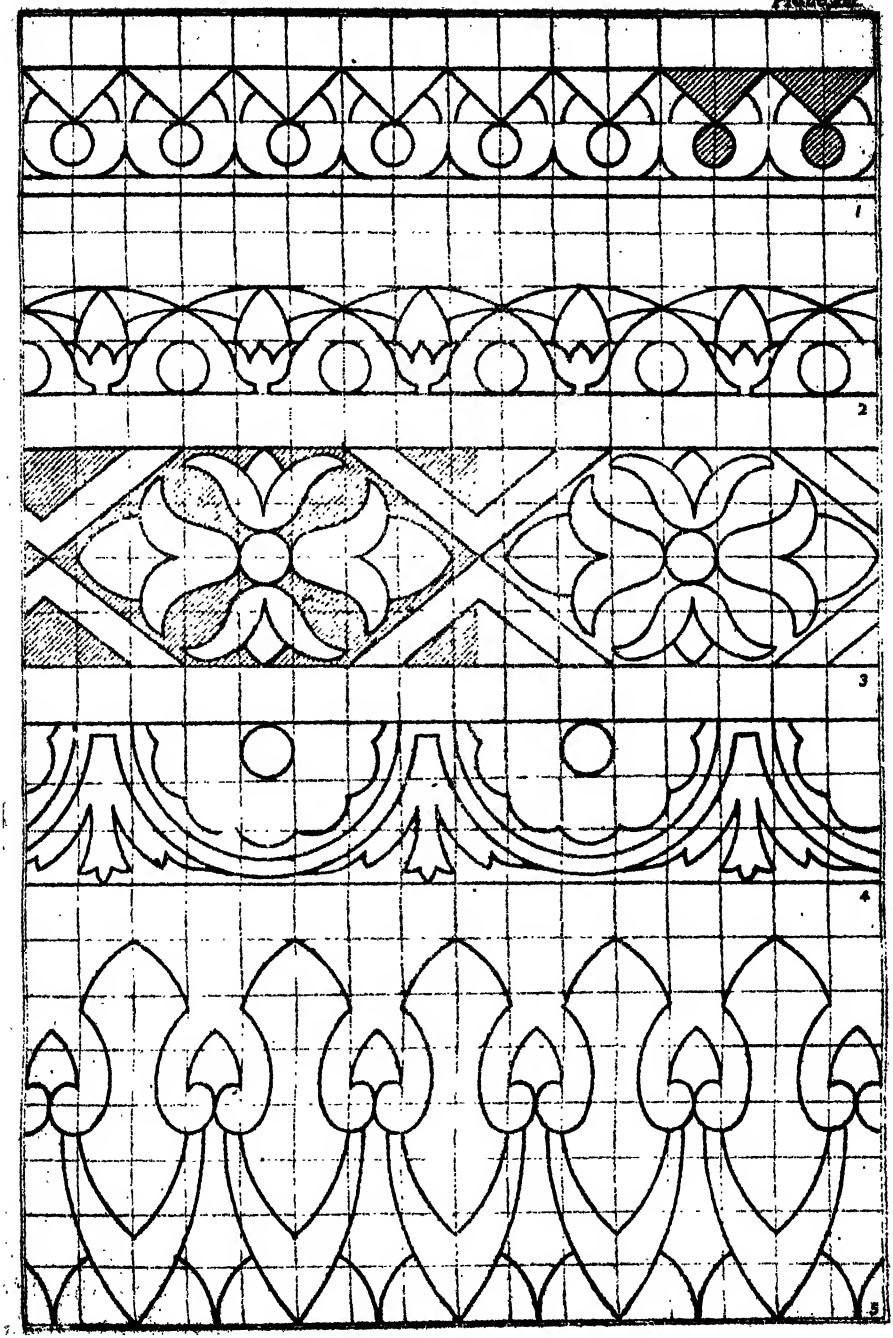
IT will be advisable to begin the work of this standard by drawing some of the exercises on squared paper from *Plates XII., XIII., and XIV.*, developing the forms of the masses by flat tinting with lines from right to left. Some of these should also be selected as the bases for first exercises in new combinations, variations, and enrichments, thus forming early exercises in design.

Two of the main faults of our present system, as developed in practice, are—

(*a*) The want of continued effort so to gradate and test the work of each section that from the earliest attempts there shall be in each drawing a large amount of right; and

(*b*) The persistent isolation of design as a distinct study only to be approached after long years of technical practice, and this practice conducted without any indication being given of its ultimate use as the means of expressing design, from its highest realisation in what is known as fine art to the produce of the simplest hand worker.

The flood of bad, mechanical, and mediocre work resulting from these two errors has done much to thwart the good intentions of those who framed our government system. To obtain a fair degree of rightness from the first efforts has been the object of the course so far, and while continuing to keep this in mind, we at this early period begin exercises in design from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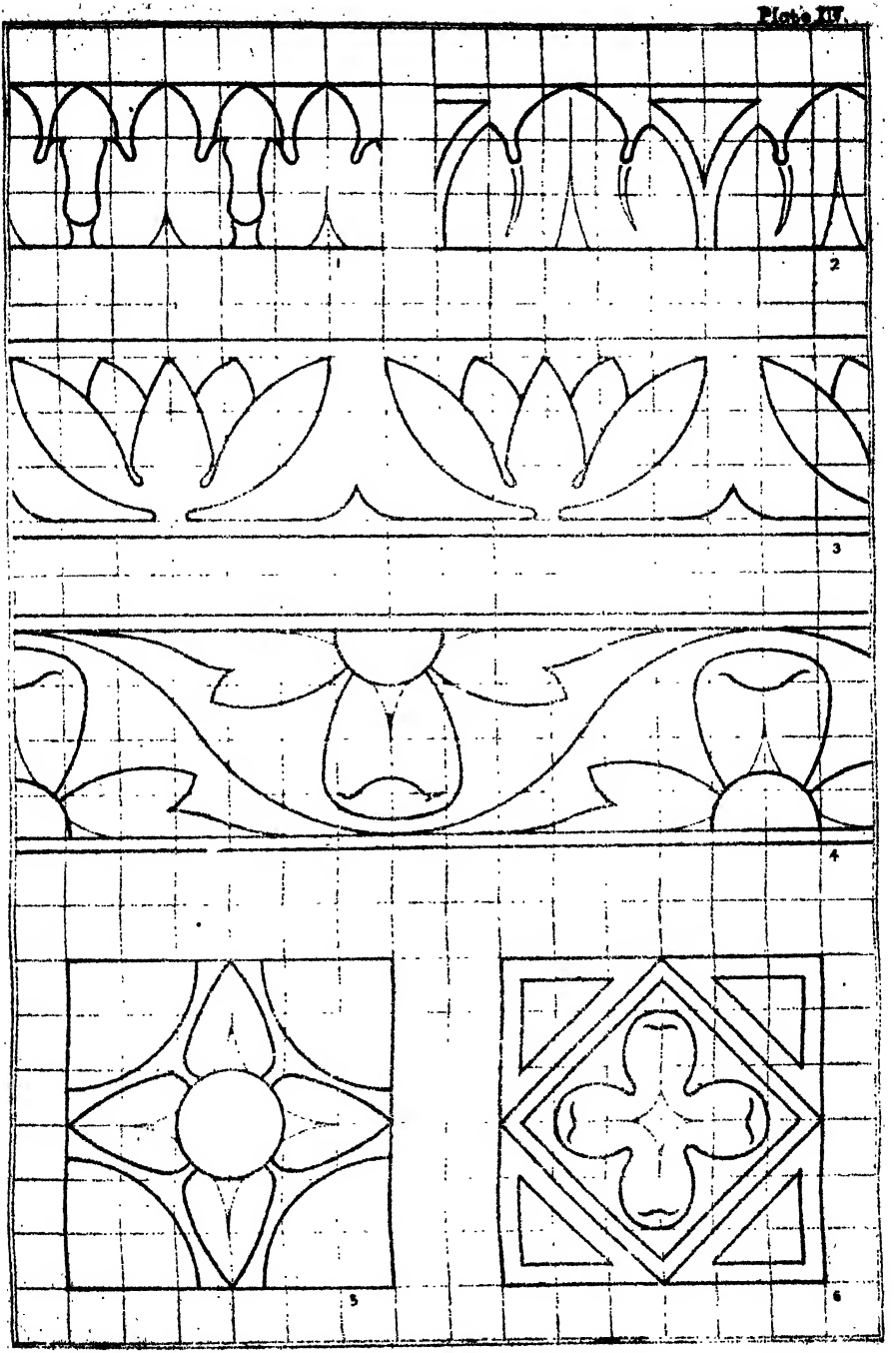
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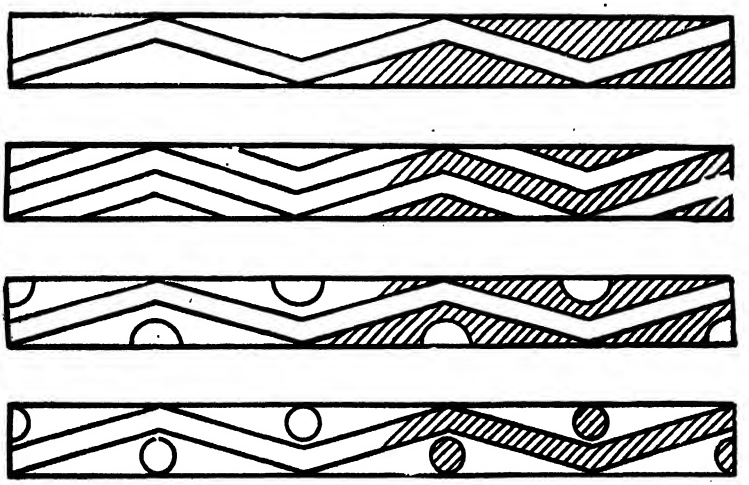
a firm conviction of the necessity for securing this the main object of all drawing, and from a high sense of its educational value in stimulating and exercising the individuality, the idiosyncrasies of each child.

Three things will have somewhat prepared the way for these exercises—(*a*) the repetition of simple forms; (*b*) the development of quantity (mass) as distinct from line; and (*c*) the memory exercises.

The four examples on this page will serve to show how



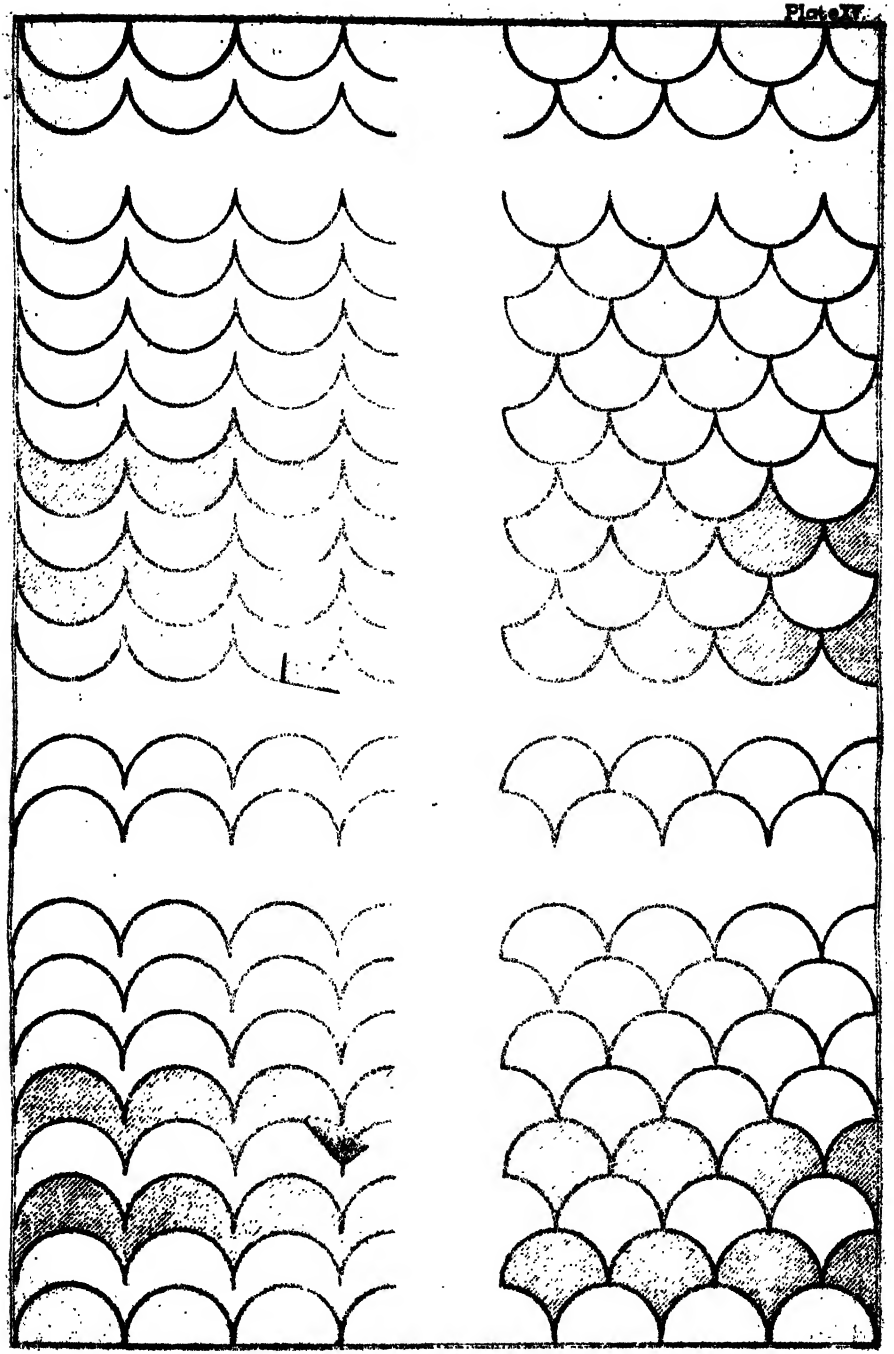
comparatively simple forms may be varied and enriched by slight additions, and most of the exercises on *Plates V. to XIV.*, will furnish groundwork for exercises in variation, many of these being but slight variations themselves: for instance, *Figs. 2 and 4* on *Plate IX.*, *Figs. 2 and 3* on *Plate XII.*, and *Fig. 2*, *Plate XI.*, and *Fig. 1*, *Plate XII.*

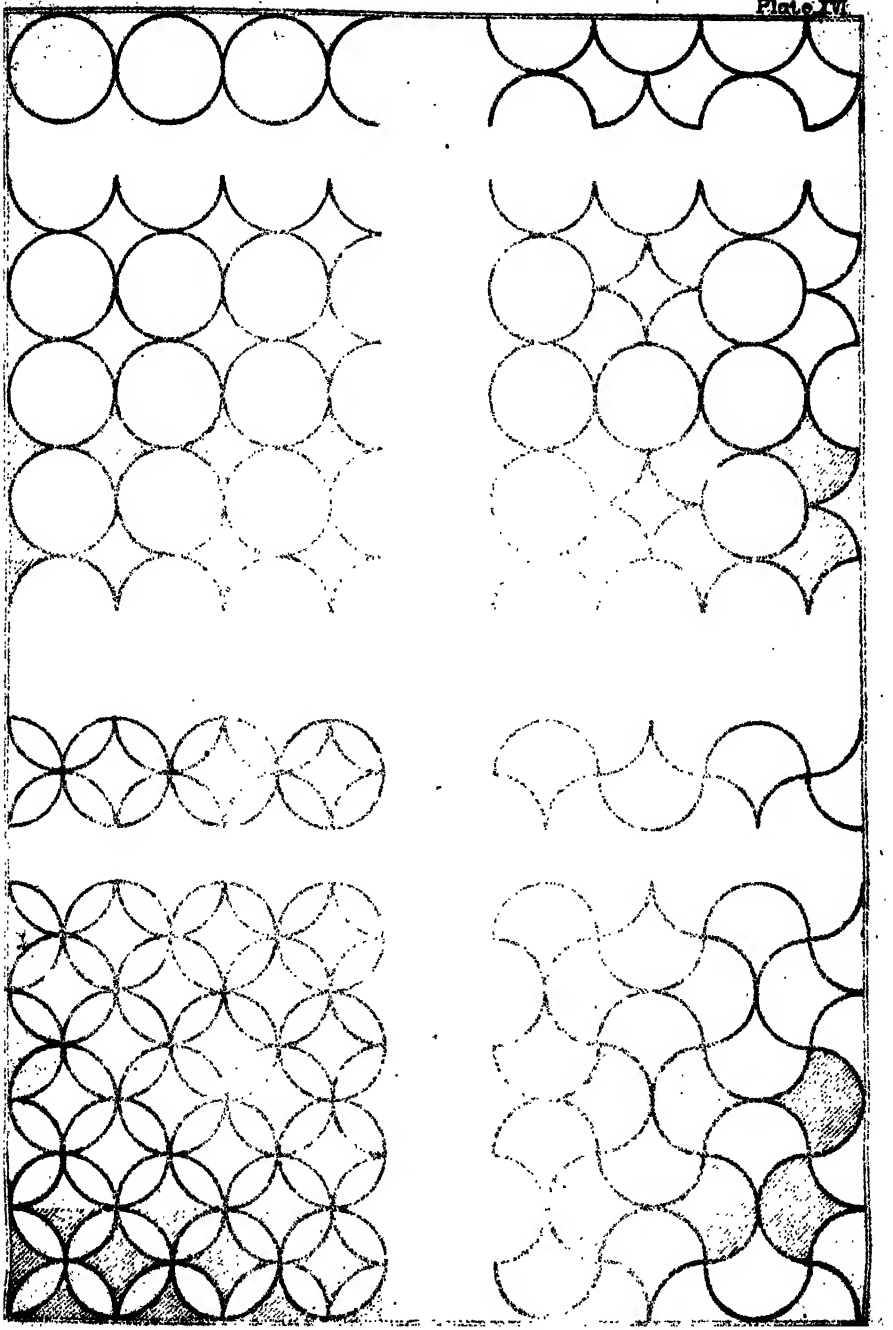
On *Plates XV. to XVIII.* examples are given showing the value of simple repetition of elementary forms in furnishing material for design, all the designs on these four plates being

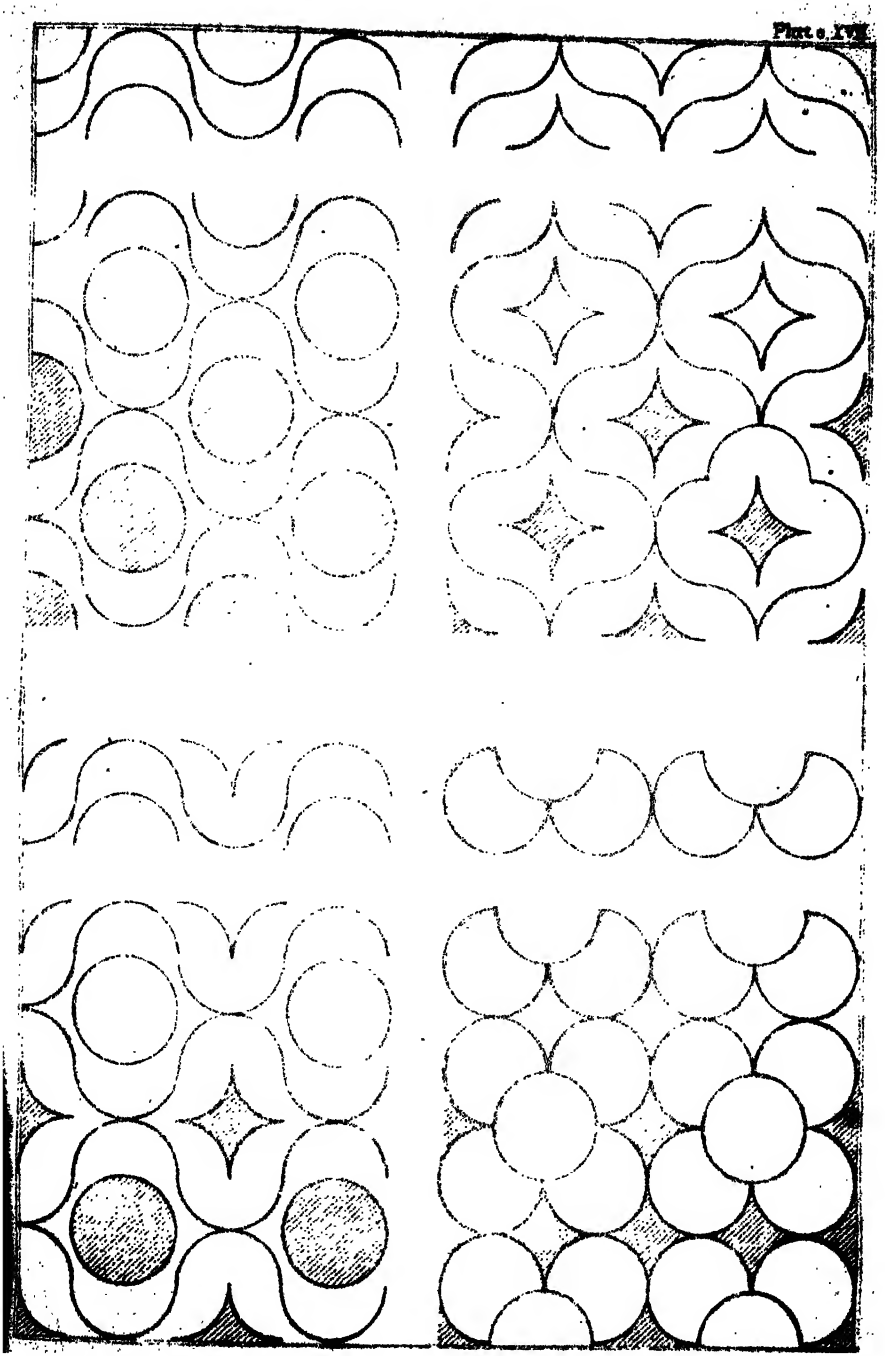
combinations of a quarter of a circle, and the effects of these combinations may be varied almost infinitely by tinting with slanting lines certain of the spaces, as in previous exercises, and by varying the size of the circles and their distances.

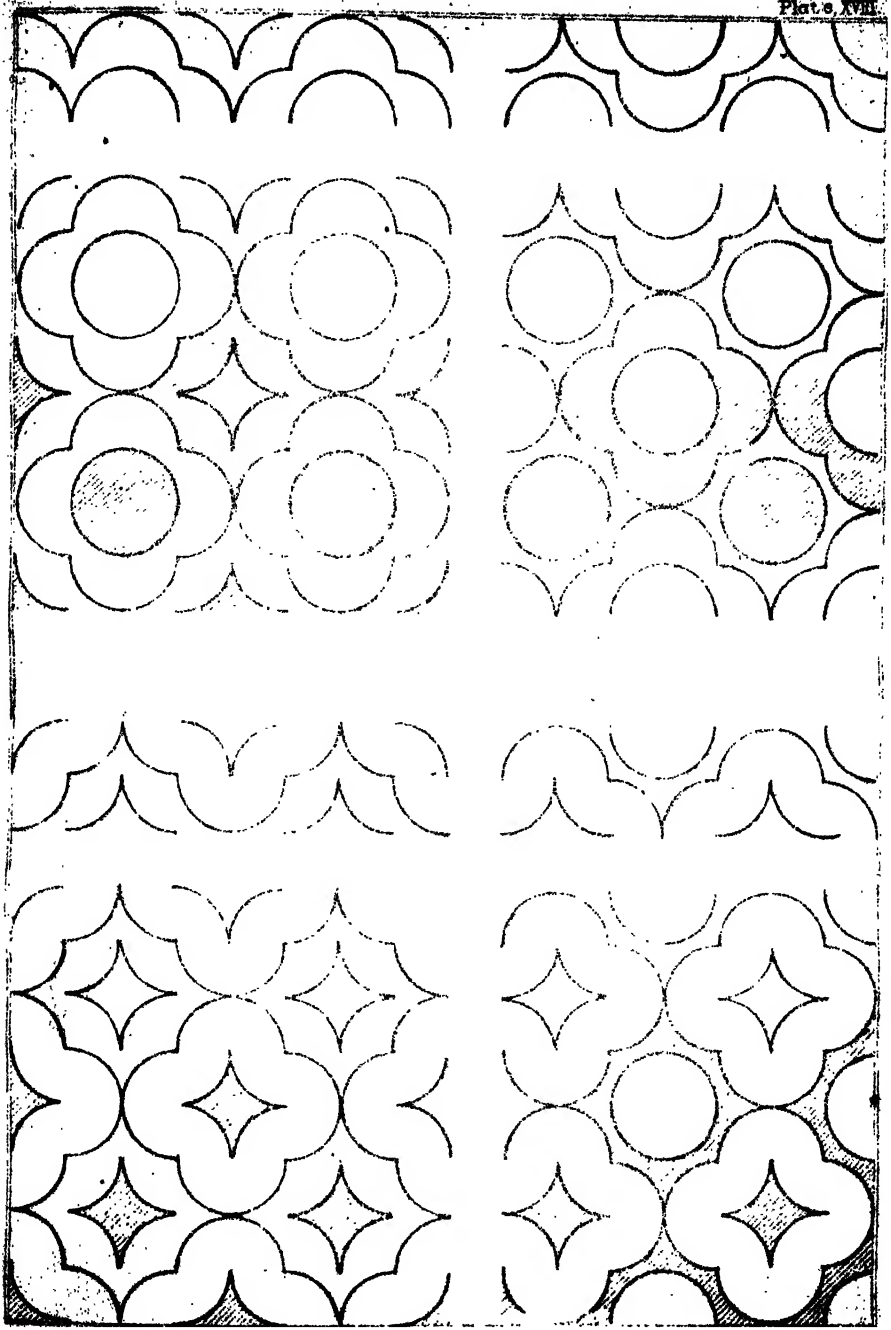
If the elements are increased in number, say a quarter circle and dot,  or a quarter circle, dot, and short straight line,  the variety and beauty of the designs which pupils make from them will often surprise the teacher. On *Plates XIX. and XX.* are given exercises produced by a class beginning this subject.

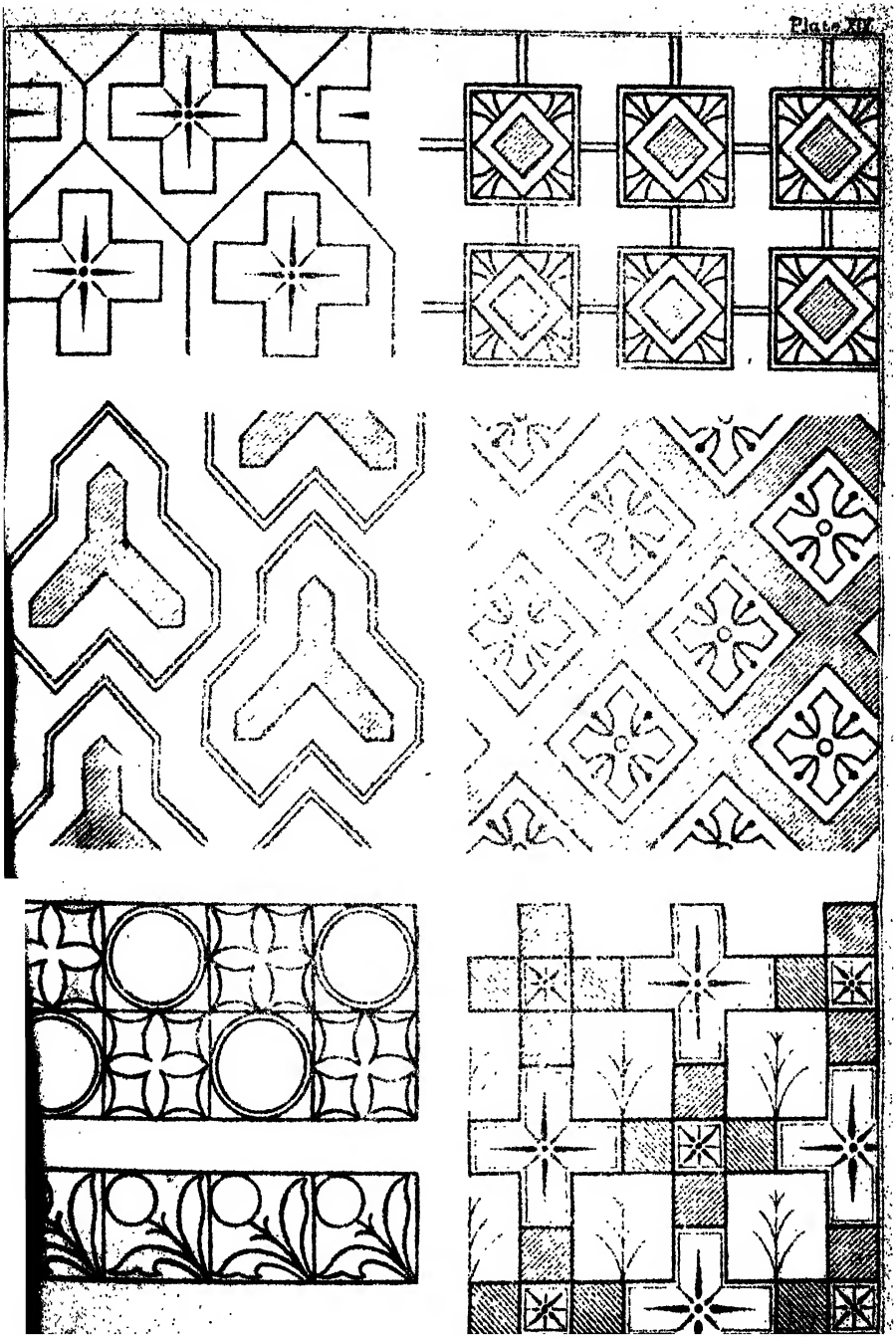
As many exercises as possible, showing repetition, combination, variation, or enrichment, should be drawn before the class and explained by the teacher during the course, and be copied by the pupils on squared paper. One example, on which no variation has been made, should then be drawn, and the pupils requested to think over and to draw any variations in the class or as home work before the next lesson. Many pupils, and among these some who will prove to be the best, will at first be shy at making these attempts for fear of failure and ridicule. It is, however, easier to overcome this diffidence with very young pupils. Never exhibit to the class absolute failures. It may be well to illustrate partial failures when the teacher can, by some slight change, show to the class how it can be made a success. On the other hand, pin up for the inspection of the class all successes, and if any one is worthy of the honour, the teacher should draw it on the squared blackboard, and require it to be copied by the whole class. It would also be well if opportunity could be found for those who had done well to draw their exercise on a large scale on the squared blackboard, to be copied by the class. Drawing on a large scale and on an upright surface compels the pupil to draw from the shoulder, if care is taken to see that his hand does not rest on the board. The opportunity for this practice will, unfortunately, be limited by

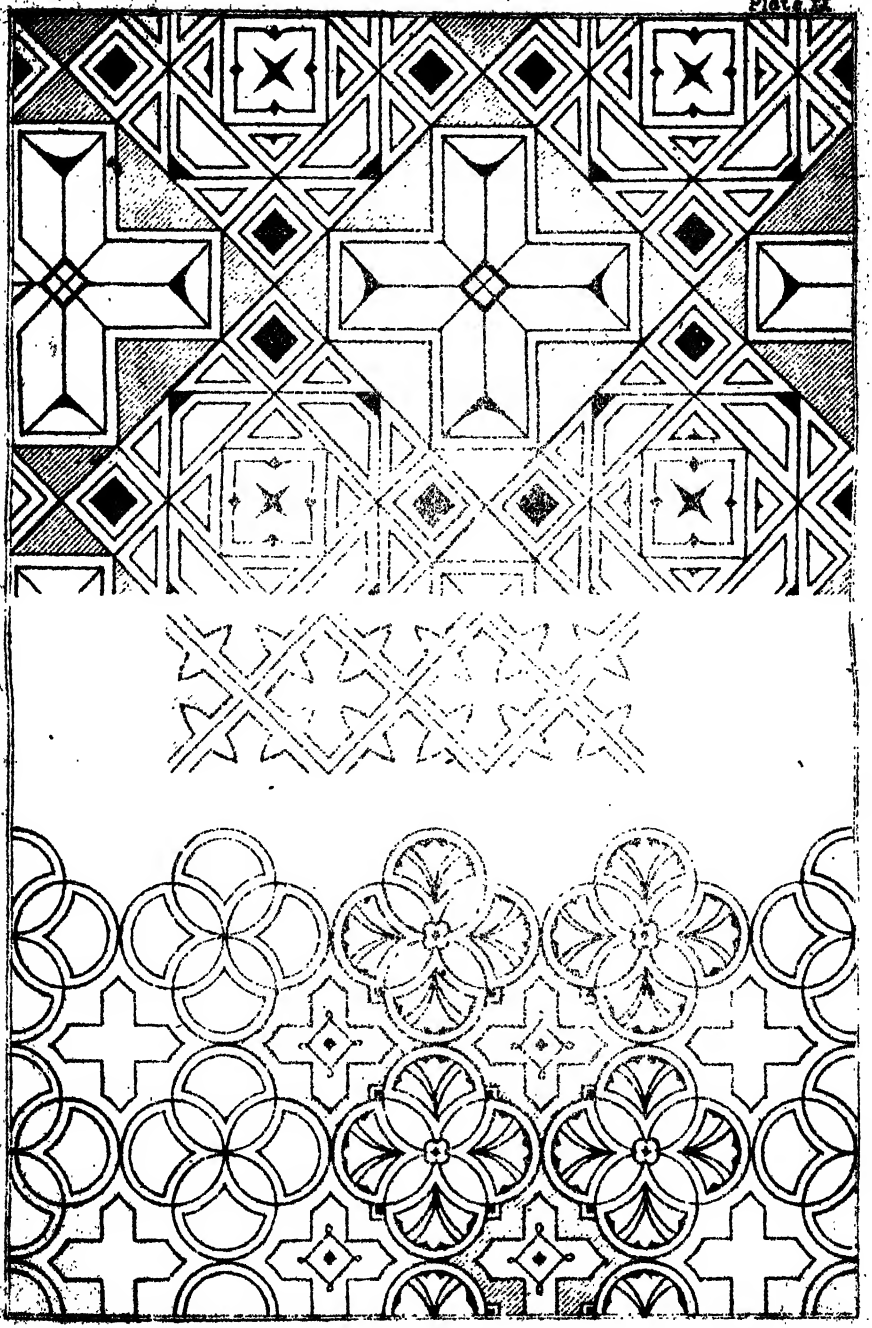


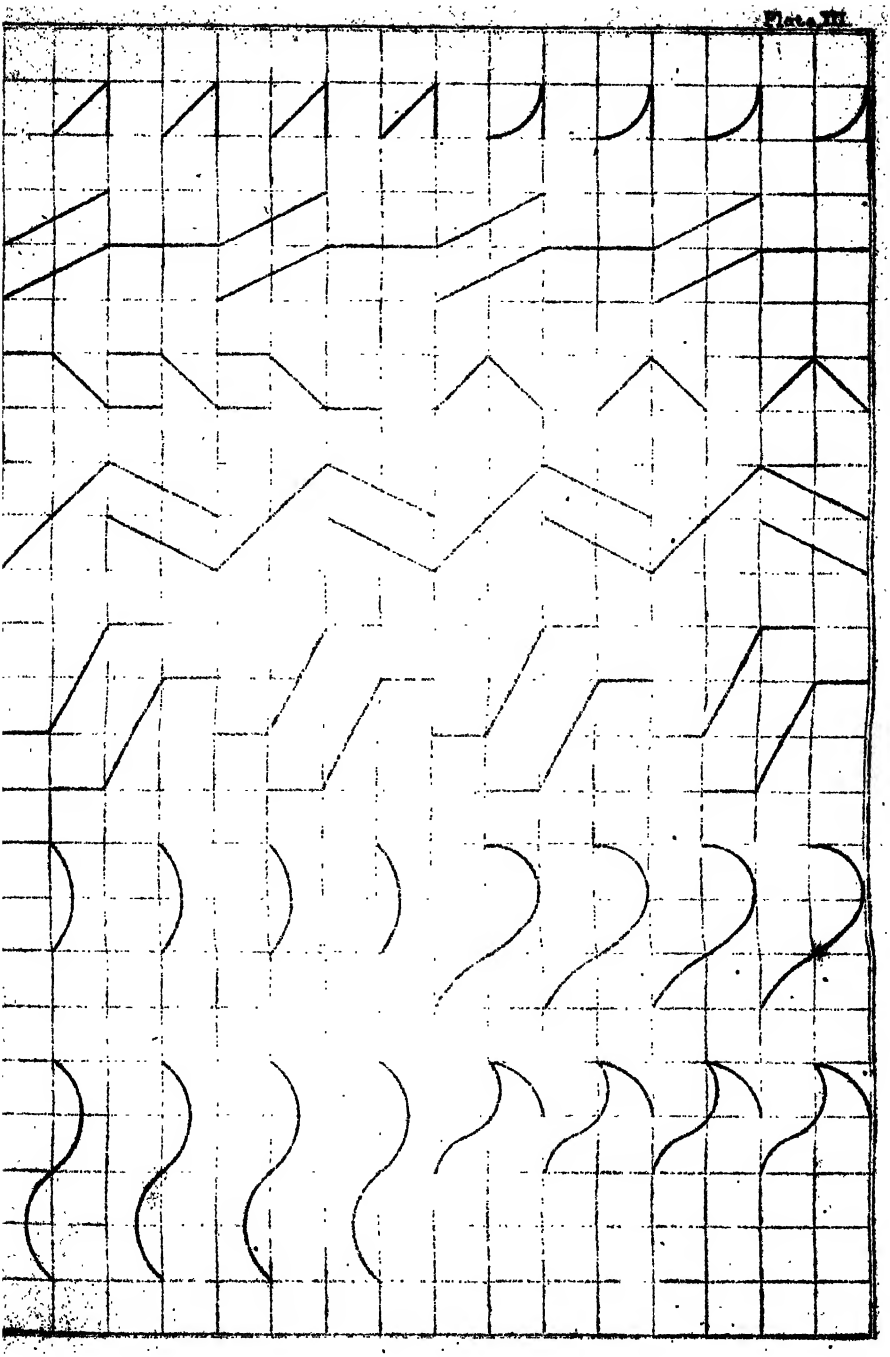


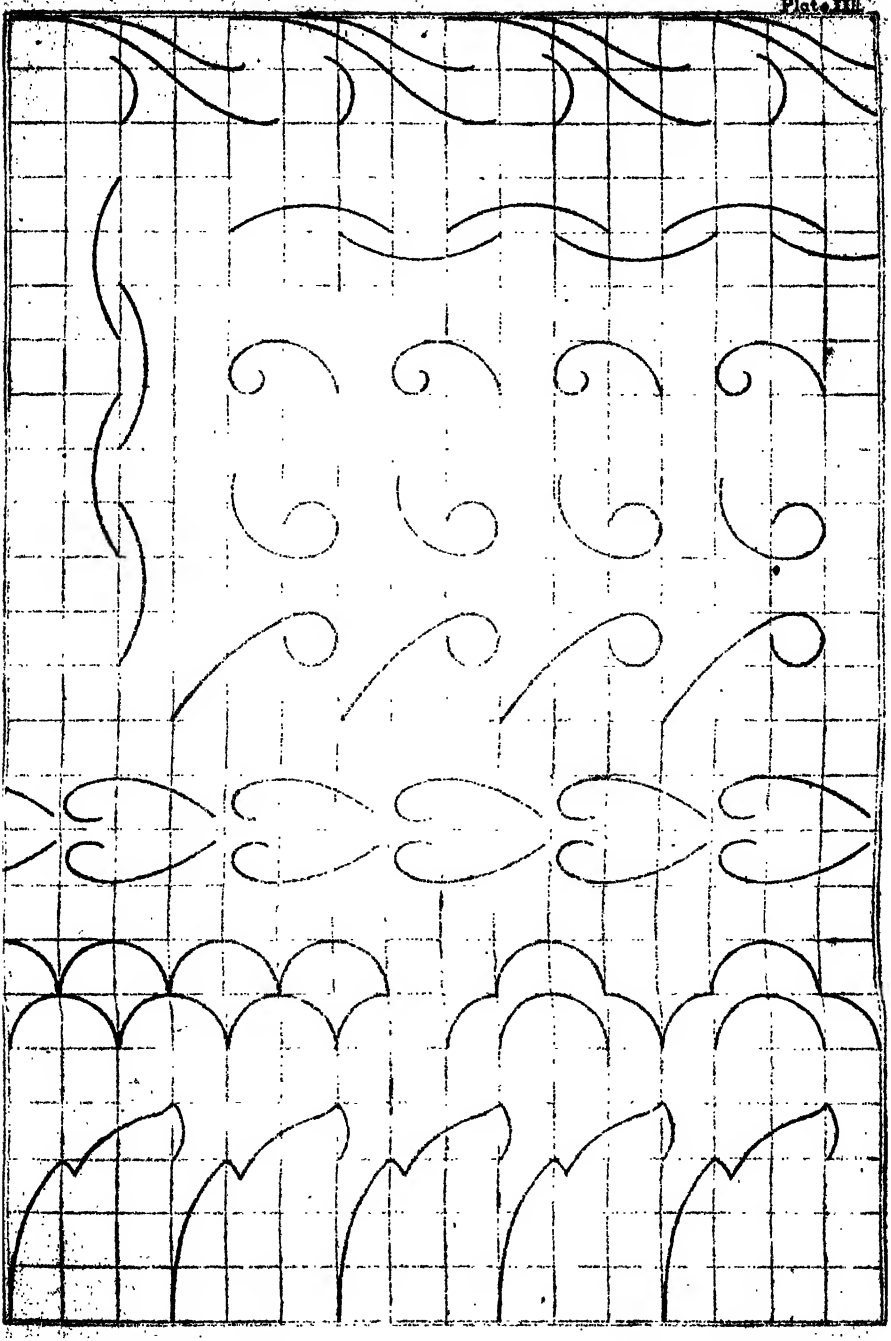












the number of boards available, but its importance cannot be too highly estimated, and the practice should be continued through all the standards.

The exercises, *Plates XXI. and XXII.*, which may be considered as writing exercises, to be repeated somewhat rapidly across the paper, will be found especially useful for this blackboard work. They should also be drawn from the squared blackboard in the squared books, the object being to secure still further a grasp of form, and this united with rapidity of expression. Each exercise should be drawn without lifting the pencil off the paper, and some may be done in the same manner with pen and ink, instead of pencil.

CHAPTER VII.

STANDARD III. (*continued*).

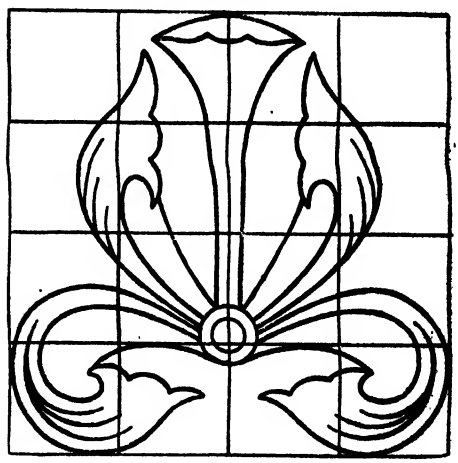
PROPORTION

THE lessons up to this point have been exercises in form involving proportion, but this proportion has been obtained by ruler or by the squared paper, except in the smaller details. The eye has been trained to see the value, and the hand to make good use of this first essential of all good drawing, aided, however, by the inch scale or the squared paper. The pupil, after this preparation, has now to go alone, but he will stumble and fall if the power to judge proportion is not imparted before examples more or less elaborate are required from him, and yet this training is only too generally omitted. Many dodges are employed to execute drawings where this training has not been given. I have before me, from a good school, a book of copies and drawings of elaborate ornamental forms, done in preparation for the second grade examination. Every example has to be enclosed in a rectangle by the pupil, each side of which is then divided into four equal parts with lines across from each of these divisions, these lines having no direct relation to any of the essentials of the example. This framework has then to be copied, and the curved forms of the example drawn upon it, as shown in the accompanying diagram.

It will be seen that this is no higher training in proportion than is given by the squared paper, but lacking the certainty

and clearness of line secured by the squared paper, while what is really required is a power and habit of judging proportions in which these aids cannot be made use of.

In Standards I. and II. practice has been given in dividing straight lines into two equal parts and subdividing these always by two. As a further preliminary a few exercises should be given in dividing straight lines, vertical, horizontal, and oblique into three equal parts. To do this well requires far higher power of judgment than to divide into two equal parts. Let a finger of the left hand be placed on the line simultaneously with the pencil in the right hand which is to make the first division,



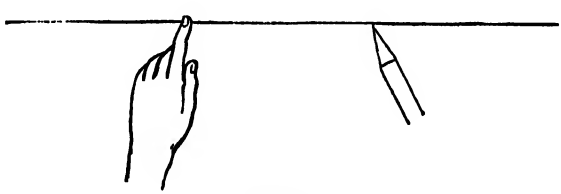


Fig. 1.

the three equal parts will be more easily judged (Fig. 1). lines in this and the following exercises should be about ength of the pupil's hand. To fill up the lesson, semicircles be drawn by freehand on the divisions after point A has carefully determined in each case (Fig. 2). Using one of divided lines, show exercises on the blackboard of lines at angles or perpendicular to it, and equal in length to one or

more of the divisions (Fig. 3). ***In these and all exercises insist that the positions of the ends of a line are always indicated before the line itself is drawn.*** In freehand, and more especially in model

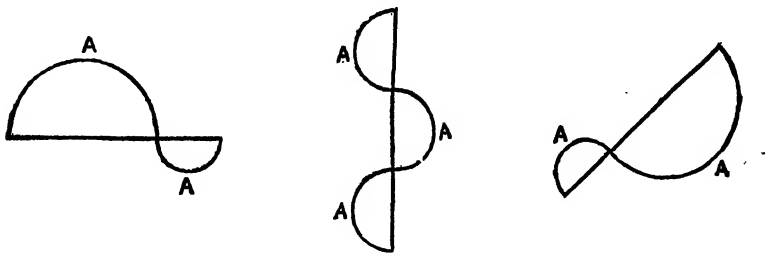


Fig. 2.

drawing, this rule will save much bad drawing and dirt. It may be advisable to mention here that the blackboard should be placed well away from the front row of desks, and that the rows should not be too long. They may, however, extend far

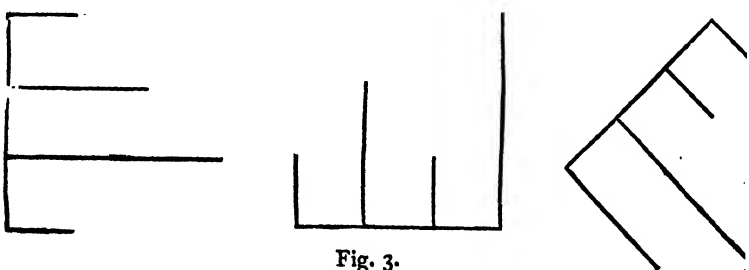
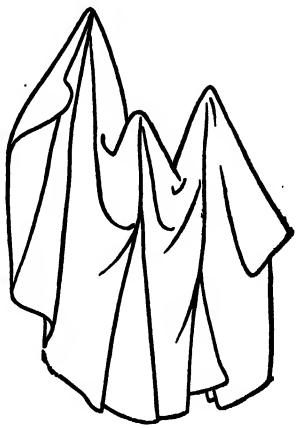


Fig. 3.

back from the blackboard, the class forming a rectangle, with the longer side from front to back. One singular fact is here worth noting. Experience has shown that there is a prevailing, if not universal, tendency to see horizontal lines longer than vertical ones; for example, a foot length vertical appears shorter than the same placed horizontal. I was for a long time puzzled with certain prevailing errors in advanced work, especially in drapery studies, and traced them to this source. The illustration given in the diagram came under my notice

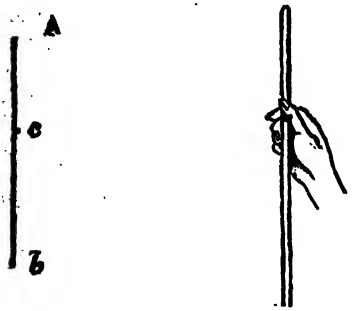
while writing this: the first figure is a mechanically reduced copy of a drawing by a student who could paint very well, but who had omitted to test the proportions; and the second another drawing of the same executed by the student after the error in proportion had been pointed out. I have almost invariably had to correct this error in beginners, but never the tendency to make vertical lines too long.

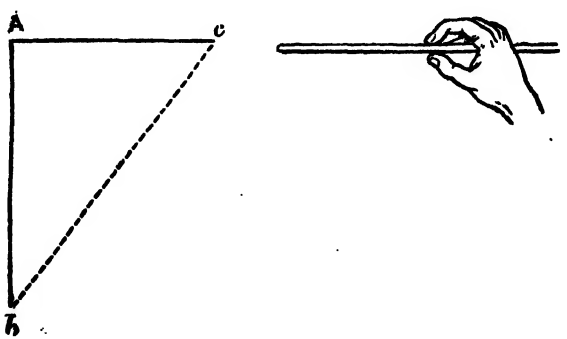


The same tendency may be detected in almost every attempt at drawing a simple square.

The next step is perhaps the most important in the whole course of study. The method adopted and the power gained thereby are the only resources and unfailing aids in ornamental, model, landscape, and figure drawing, and are employed through the whole of an artistic career. It can be most efficiently taught from the blackboard. The object is to teach the pupil to judge the *relative* lengths of lines or portions of lines by means of the pencil *held in a vertical plane parallel to the eyes.* Commence with drawing a vertical line A *b*, on the blackboard to be copied by the pupils; on this line fix any point *c* not at any known distance from points A or *b*. The pupils are now required to fix point *c*. The attempt should first be made without any help except the judgment of the eye. Make this a golden rule in all drawing. *Try first, test*

after. This will give confidence and accuracy, while the reverse will encourage feebleness. To test its accuracy let the pupil close one eye and hold his pencil vertically at arm's length until the top of the pencil appears to coincide with the top of the line on the blackboard, noting with the thumb the apparent length of A *c*. Still keeping the pencil at arm's length, move it downwards until the top coincides with *c*, and the pupil will be able to see how much less or greater A *c* is than *c b*, and can apply this fact to his drawing. To do this well will require some mechanical practice on the part of the pupil and patience from the teacher, but the latter should bear in mind that it is the only method, and one which is applicable to all kinds of drawing, even that of the human figure. As a second exercise draw a vertical line A *b*, and across the top draw a horizontal line A *c*, say on the right, of no measured proportion to A *b*. Let this be attempted by the pupil, and





tested by his holding the pencil at arm's length to cover the horizontal line on the blackboard thus, measuring its apparent

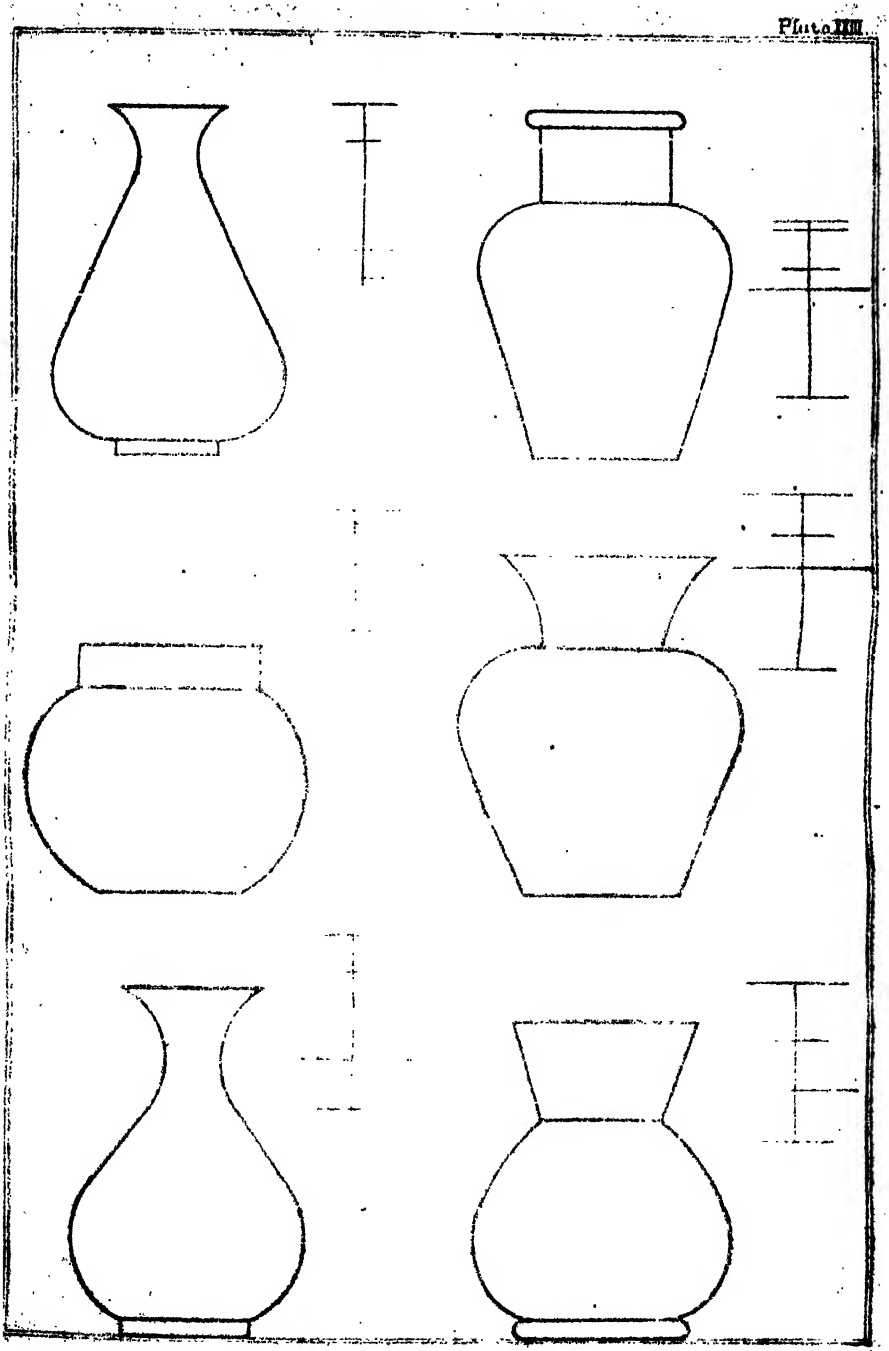
length with the thumb. *Still keeping the pencil at arm's length*, turn it so as to coincide with the vertical line on the blackboard, and it will readily be seen how much the horizontal line is less or greater than the vertical line. One proof of accuracy can be here applied. Join the extremities *c b* on the blackboard. If the pupil has made his two lines in the same proportion as those on the blackboard, then *b c* in his drawing will be *in the same direction* as *b c* on the blackboard. This brings to bear another important fact which should be constantly kept in mind, that in enlarging or reducing a drawing *the direction of the lines does not change.* The triangle is a *similar* triangle, though so much smaller, having similar angles and sides. This method of measuring can also be applied to drawing from small examples when placed in front of each pupil, the drawing to be made larger or smaller than the example.

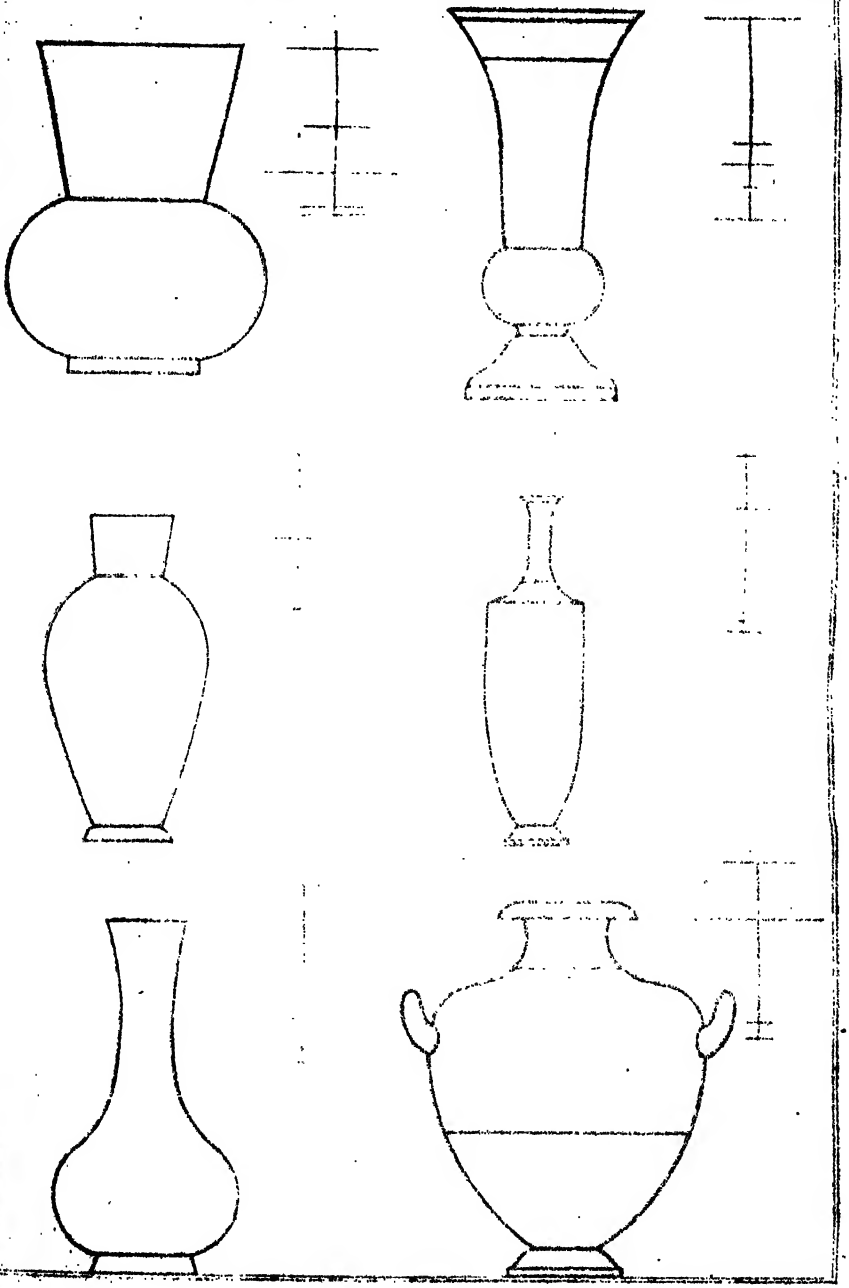
Much dispute has arisen on this question of measuring in freehand drawing from the blackboard or from copy, many asserting that the drawing throughout the course of instruction shall be executed without any aids, basing their argument on the fact that no measuring is allowed in the examination in freehand. Now although the ultimate aim is to train the eye to measure proportion without mechanical aids, we have recommended that in accomplishing this training the first efforts be made on squared paper, so as to accustom the eye to certain proportions while the hand is receiving its first training; and now, when the pupil makes his first attempts at proportion, there is provided a means for his testing the accuracy of each attempt *as soon as it is made.* By this method each pupil becomes his own monitor, not waiting for the teacher to say this is right or this is wrong (and having to stay to prove it, too, or it is no use saying it), but obtaining the power to test these things for himself; thus a larger proportion of accuracy is secured in the work of the whole class, and what is of far more importance educationally, it gives confidence to the pupil. The

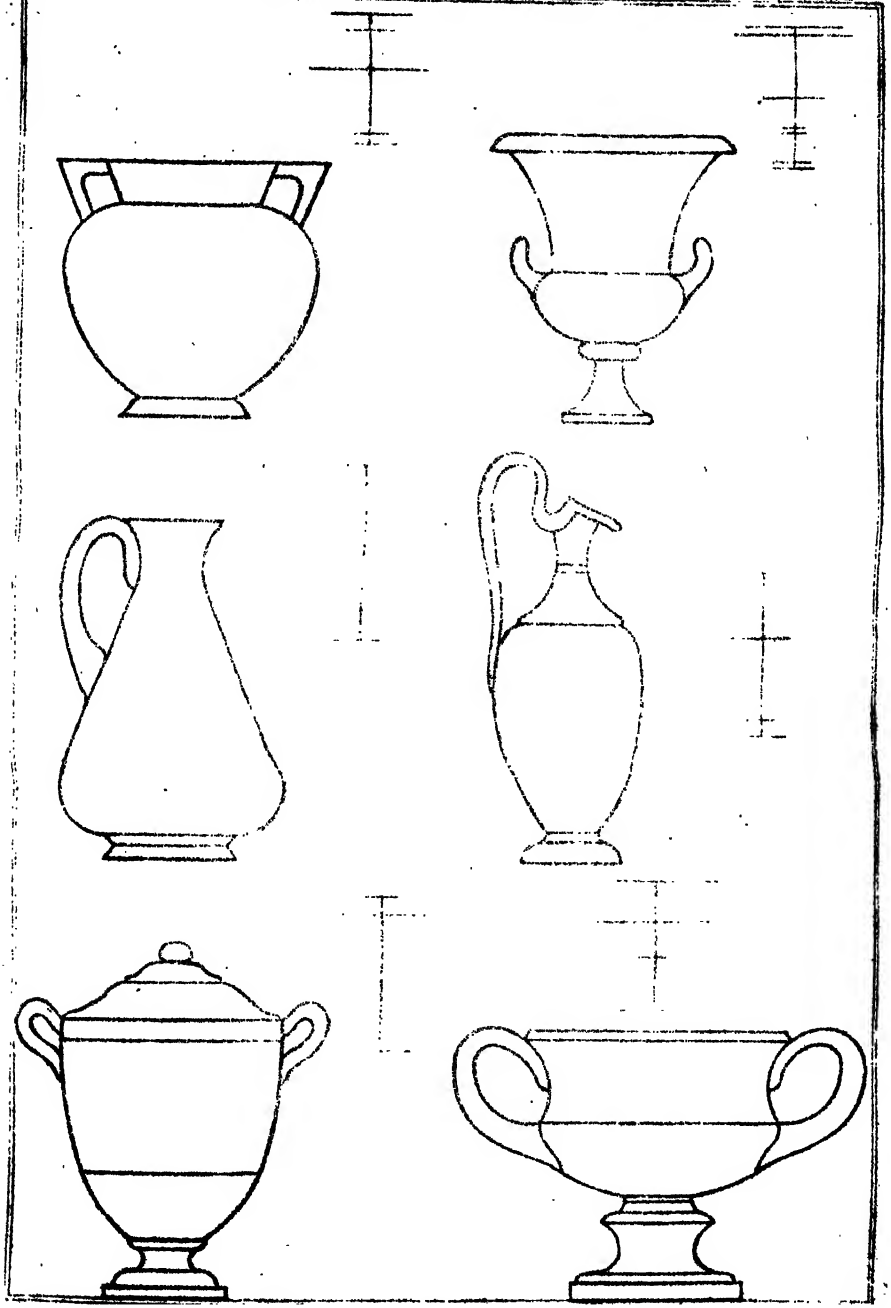
teacher should note that this method determines the relative size of one part of the drawing to another, but not the actual size of the drawing itself, which is arbitrary, and is fixed by the pupil as soon as the first line is drawn of any convenient size. At the same time we cannot too earnestly draw the attention of teachers to the wide difference between this and the practice, only too common, of allowing a student to measure first and then to draw, or to make by repeated measurements drawings of the same size as the examples.

To instil the object of this method in the mind of the pupil, and to give sufficient practice to enable him to make good use of it, will take up much time and cause weariness if these and similar exercises alone formed each lesson until the power is acquired, and we have therefore selected some vase forms (*Plates XXIII., XXIV., and XXV.*). The proportional lines are shown at the side of each example, and after these are carefully drawn, the vase forms based on them will serve as applications of the lesson, and at the same time place before the pupil forms comparatively simple, yet interesting and beautiful. The practice of these forms will also be found useful in the teaching of model drawing. The shape of each curve should be well considered, and, as far as possible, drawn very lightly in one curve, and not by a series of small lines or by dots. Attention may here be drawn to the very prevalent practice of making dotted lines as a preliminary. This should not be allowed. The lines must be continuous and drawn with a light hand. It is, however, most important that the teacher and pupil should bear in mind that the lessons in this section are not so much lessons in drawing vases or drawing ornament as lessons in *proportion*. Give no value to neatness of line, or even delicacy of curve, if the proportions have not been understood or have not received sufficient care and attention.

The use of these diagrams of solid forms for first exercises instead of abstract curved lines of ornament has another advantage. The eye more readily grasps the direction of a line, or







lines, by *observation of the shape or space which is enclosed or defined.* This habit of looking for spaces as tests of the accuracy of lines is one of the advantages of the flat tinting of the form, or ground, by means of slanting lines, which has already been practised by the pupil, and should be encouraged in every lesson. These vase forms will also prove to be among the best exercises in memory drawing to be given at the commencement of each lesson. A few simple ornamental forms, to be drawn on plain paper, suitable to complete this standard are *Plate X., Figs. 7, 8, 14, and 16; Plate XI., Figs. 1, 2, 3, and 4; Plates XII., Figs. 1 and 2,* and *Plate II., Figs. 8 to 19.*

In connexion with this book a selection of freehand examples is published for individual use by the pupils, as it is desirable that pupils should also be accustomed to drawing from a copy placed near them, and also because in many schools the staff is not large enough to allow all the exercises to be from the blackboard. It is, however, desirable that these copies should only be used by pupils who have been taught from the blackboard, and that the drawing of the pupil should never be the same size as the copy, but always larger or smaller.

CHAPTER VIII.

GEOMETRIC FORMS FOR STANDARD III.

THE geometric forms required to be executed in this standard are triangles, parallelograms, and polygons. *Geometric construction* only begins in its simplest forms in Standard V., and the construction of polygons in Standard VII.; it is evident, therefore, that in this standard approximate figures only are required, even when done by the ruler, so as to familiarise the pupil with these forms, and so obtain practice of hand. If, however, the pupil has mastered the use of the 45° and 60° set squares in Standards I. and II., all the forms given in the syllabus can be accurately drawn by their aid, excepting the pentagon; but in addition to thus drawing them geometrically, they should again be drawn from examples on the blackboard by the aid of the *ruler* only, the pupil using his eye to determine as accurately as possible the directions of the lines; and again entirely by free-hand.

This work will, therefore, be gradated as follows:—

(*a*) Such as can be accurately drawn by means of the set squares and ruler.

(*b*) All the geometric straight-lined forms, including the above, to be drawn by ruler only, the eye determining the shape.

(*c*) The above drawn by freehand only.

Let the class be instructed in analysis of the figures (their names only were learned in the first section), such as: Equilateral triangle, three equal sides, three equal angles or corners;

isosceles triangle, two equal sides, two equal angles or corners; square, four equal sides and four equal angles; regular pentagon, five isosceles triangles; regular hexagon, six isosceles triangles; regular octagon, eight isosceles triangles, &c. Care should be taken to draw the figures in various directions, and memory drawing should form the earlier part of every lesson, for by this means only can the teachers test to what extent the pupils have profited by the previous lessons.

The interest of the students will be awakened if this section concludes with

(*a*) Exercises from written description similar to and also more complicated than those given on slates (pp. 27 and 28). These can most easily be worked on squared paper, making use of the fact that each square is a quarter of an inch.

(*b*) Very simple exercises in drawing objects to scale, using the squared blackboard and squared paper. Examples: Let the teacher measure the height and breadth of a door, window, map, or chimneypiece in the schoolroom, or the length and breadth of the room itself, and draw these on the squared blackboard, letting each square represent one foot, or two squares one foot, or each square two feet, or more, according to the size of the objects.

(*c*) By decorating the forms obtained accurately by means of the set square, thus combining freehand and geometry, and showing the use of the latter in ornamental drawing. This practice should also be continued throughout the course, especially in Standard V., where geometric construction is one of the subjects of the examinations. It is continuing the idea involved in the use of the squared paper, viz., exercising the hand and eye in freehand on a base which is accurate, and it has the further value of interesting the pupil in his geometry lessons by giving him practice in some of its uses.

One of the weaknesses of the present system is this isolation of geometry from freehand. The new code is a step in the

right direction, for it enables the two subjects to be taught concurrently, and what is now proposed is the best means of making use of the opportunity offered by this concurrent teaching. *Plate I., Figs. 23, 25, 26, 27; Plate II., Figs. 8, 17, 18, 19; Plate XIII., Fig. 4; Plate XIV., Figs. 5 and 6,* are suitable examples, and the teacher can easily gather or invent many others. The more elementary should be used at this stage, and the others in Standards IV. and V. All the straight lines should be ruled, and all circles, or arcs of circles, be drawn with the compasses.

CHAPTER IX.

FREEHAND FOR STANDARDS IV. TO VII. AND THE SECOND GRADE EXAMINATIONS.

THE work in Standard IV. will test the highest teaching and artistic powers, for it includes proportion, analysis, drawing from copy, model drawing, and scale or plan drawing.

It will be seen that our foundation, if comprising work not directly shown in the syllabus, is not too broad and sound on which to build such important teaching as is comprised in this section, and, with the exception of the vase forms in the previous standard, given as first exercises in proportion, it has all been foundation work helped by every legitimate aid.

It does not follow the necessarily narrow and scanty lines of the syllabus, but it is essential to secure the purpose had in view by its framers.

The principles will be more clearly understood if in this place we explain the whole course of freehand drawing from the flat, including Standards IV. to VII., and the second grade examinations of schools of art and art night classes, leaving the model and geometric drawing of these Standards to be explained in subsequent chapters.

PROPORTION AND ANALYSIS.

So far every drawing has been built up on the blackboard, and the pupils have blindly, in faith, followed their teacher.

The aim now should be, while showing the application of the method in more complicated work, to explain the principle on which it is based, to show the how and the why, and to give opportunity to the pupil, under the direction of the teacher, of applying these principles and methods for himself. This will secure intelligent drawing as distinct from copying.

COURSE A.—Lessons, in each of which one example is drawn before the class, such as those given on *Plates XXVI., XXVII., and XXVIII.*, in which the several stages are shown, care being taken to explain the reason for, in the first place, drawing the lines which give the main proportion, that on these being rightly drawn depends the success of the completed drawing, and that to begin one portion and finish it bit by bit would be like building up one corner of a house and finishing it without planning it out and laying the foundation of the whole. Proportions in all these and succeeding exercises, both in freehand and model drawing, must be drawn first and afterwards measured or tested by the method explained in Chapter VII. Explain that, to do all one side first—a method still taught in too many schools—is like trying to draw a face by drawing one eye, half a nose, half a mouth, &c. Point out again and again that an invaluable aid in judging proportion is to observe that, when the drawing is enlarged or reduced, the direction of the lines, whether straight or curved, remains the same as in the example, and, as a consequence, any shapes included by these lines, although larger or smaller, are the same in kind. After the drawing of the proportion and the principal lines obtained by its aid, the teacher should examine as much as possible the work of the class, illustrating any errors on the blackboard.

Note carefully that, by the process shown in the plates, we avoid another prevalent error. In a symmetrical drawing on a vertical line, such as Fig. 5, it is a too common practice to draw at once a number of horizontal lines, Fig. 1, indicating the

Fig. 1.

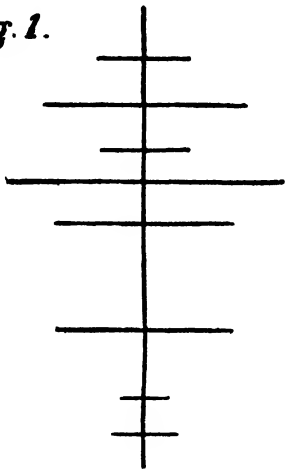


Fig. 2.

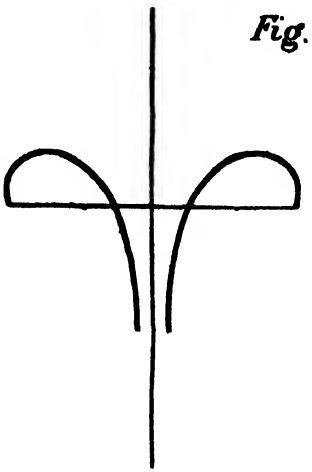


Fig. 3

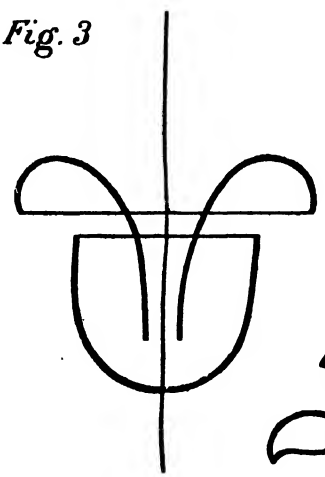


Fig. 4

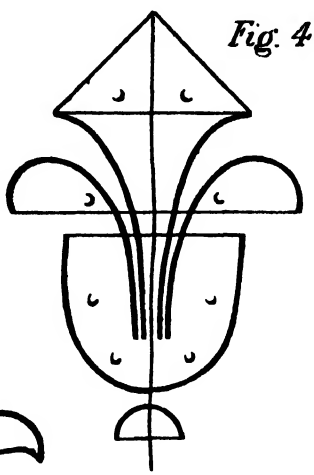
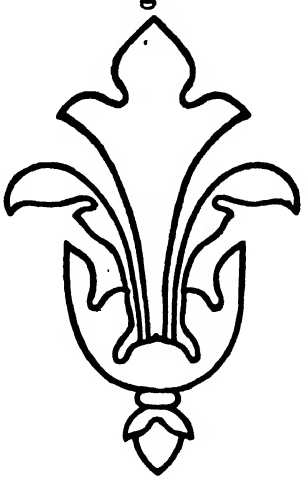


Fig. 5.



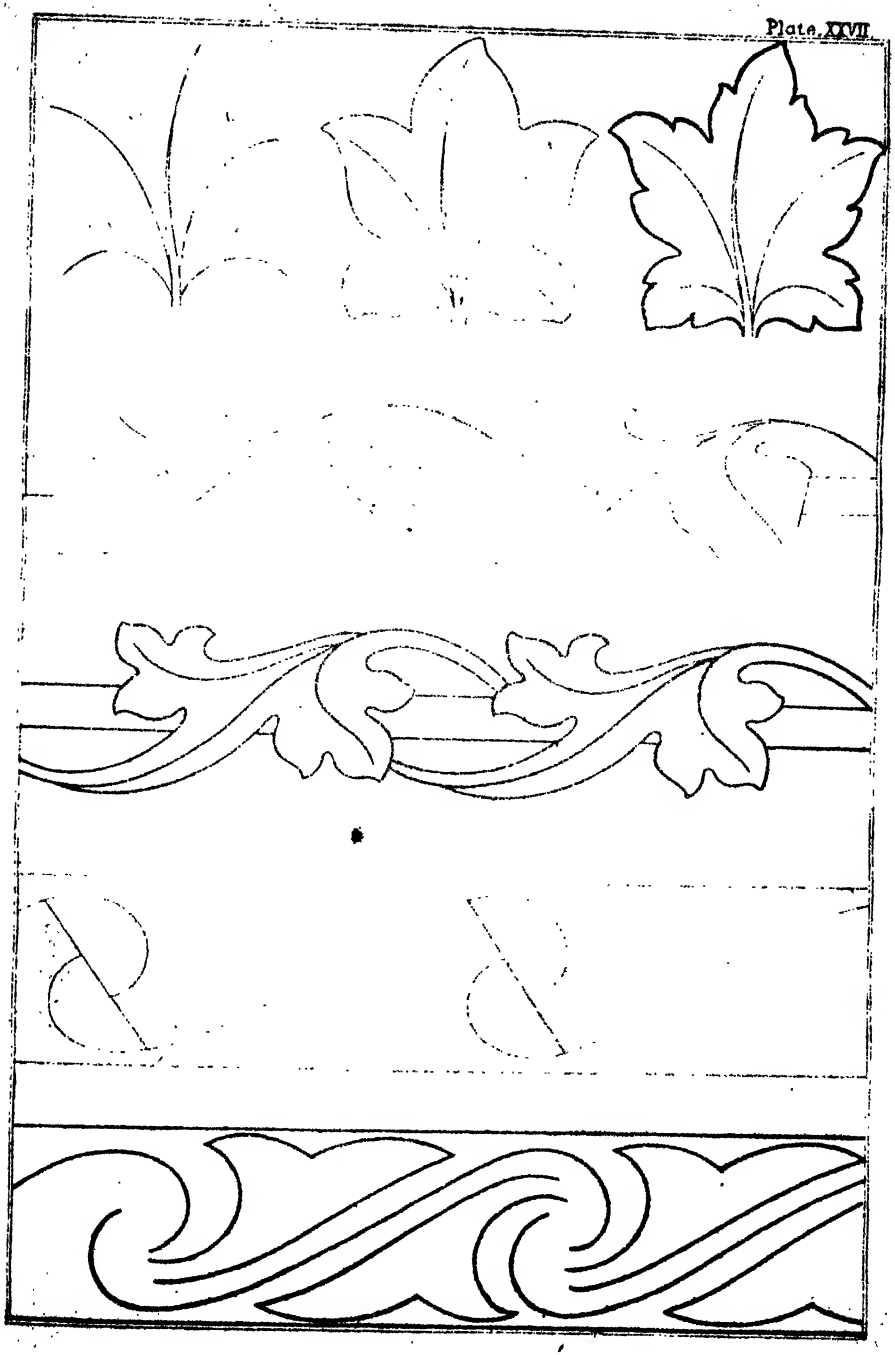
position of every curve on each side. This is confusing, and is only little better than drawing across the copy a series of lines at regular intervals already referred to. When the principal proportion is obtained make use of it at once by drawing the lines it determines, Fig. 2, then obtain a second one, Fig. 3, and at once make use of it, and so on, until all the principal lines are drawn. The smaller distances and the less important proportions will be sufficiently indicated by fixing points to represent their position without the necessity of drawing lines between them, Fig. 4.

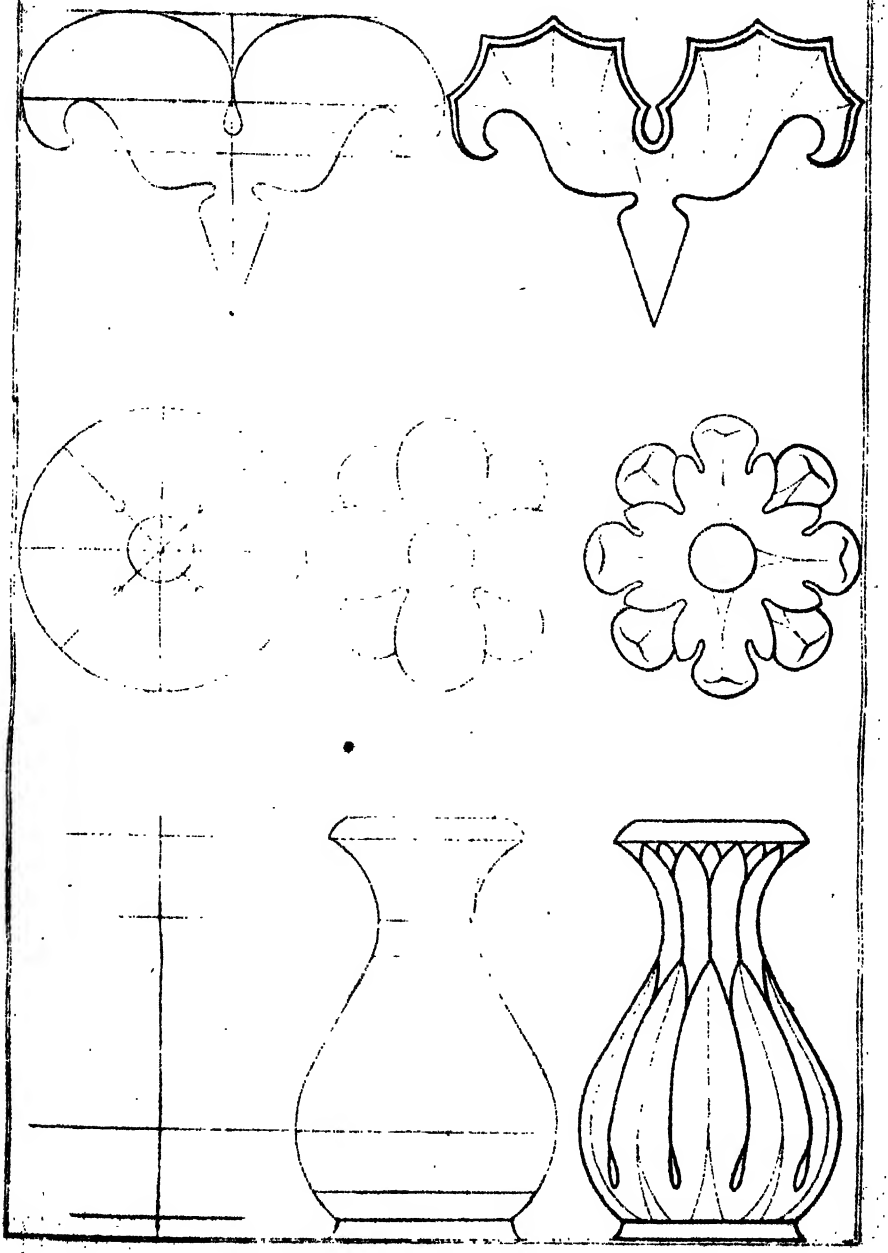
The method has so frequently been wrongly or imperfectly explained in published examples as to lead to many errors, often entirely nullifying the object of the explanation. To avoid any possible mistake all the examples on *Plate XXVI. to Plate XXXIII.* which illustrate these sections are shown in two or more stages, *each stage also marking a period in the lesson when every exercise should be carefully examined.*

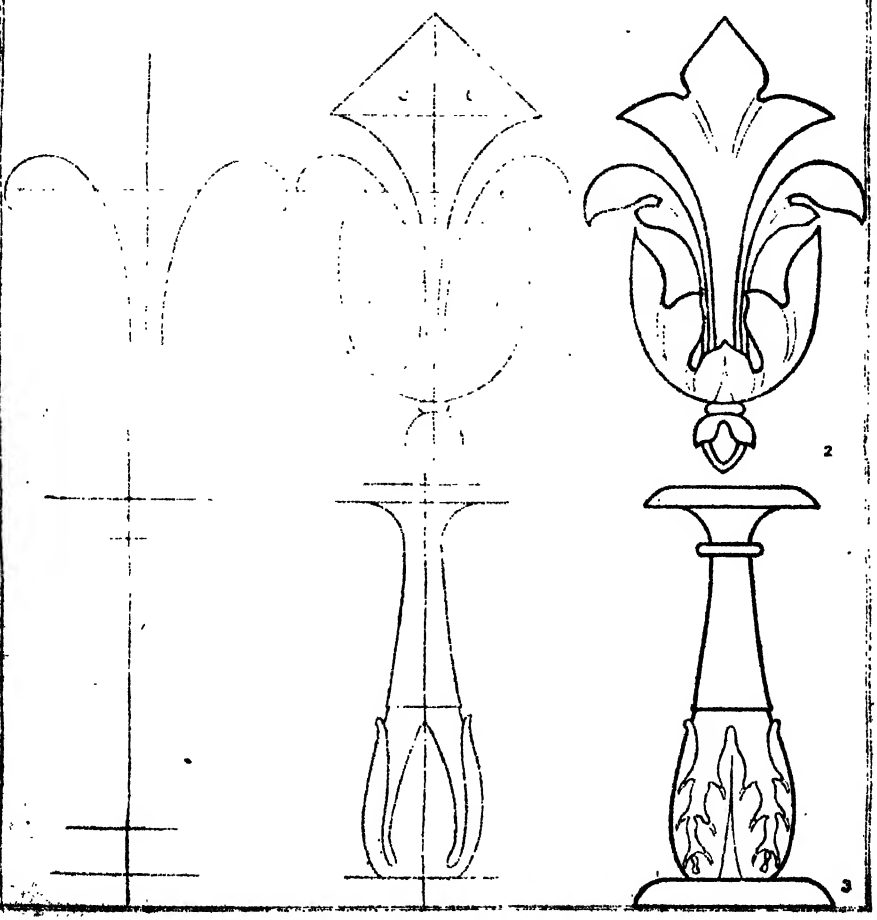
When the drawing is completed the pupil should be asked to make a small drawing showing the proportions and main lines (the first or second stage shown on the plates), and these should again be drawn from memory at the beginning of the following lesson.

This course will be sufficient for Standard IV., using as examples the diagrams on *Plates XXVI., XXVII., and XXVIII.*, also selections from *Plates XIII. and XIV.*, drawn on plain paper, and adaptations of some of the brush forms, *Plates XXXVI. to XXXIX.* For practice from separate copies for each pupil, use the first portion of the set of examples on cards.

COURSE B.—Lessons in each of which an example large enough to be seen by the whole class is placed in view of the pupils, either on the left half of the blackboard, or, better still, on another blackboard. The teacher should explain that, although the example is placed before the class, the pupils must only copy such lines as are drawn on the blackboard; that his



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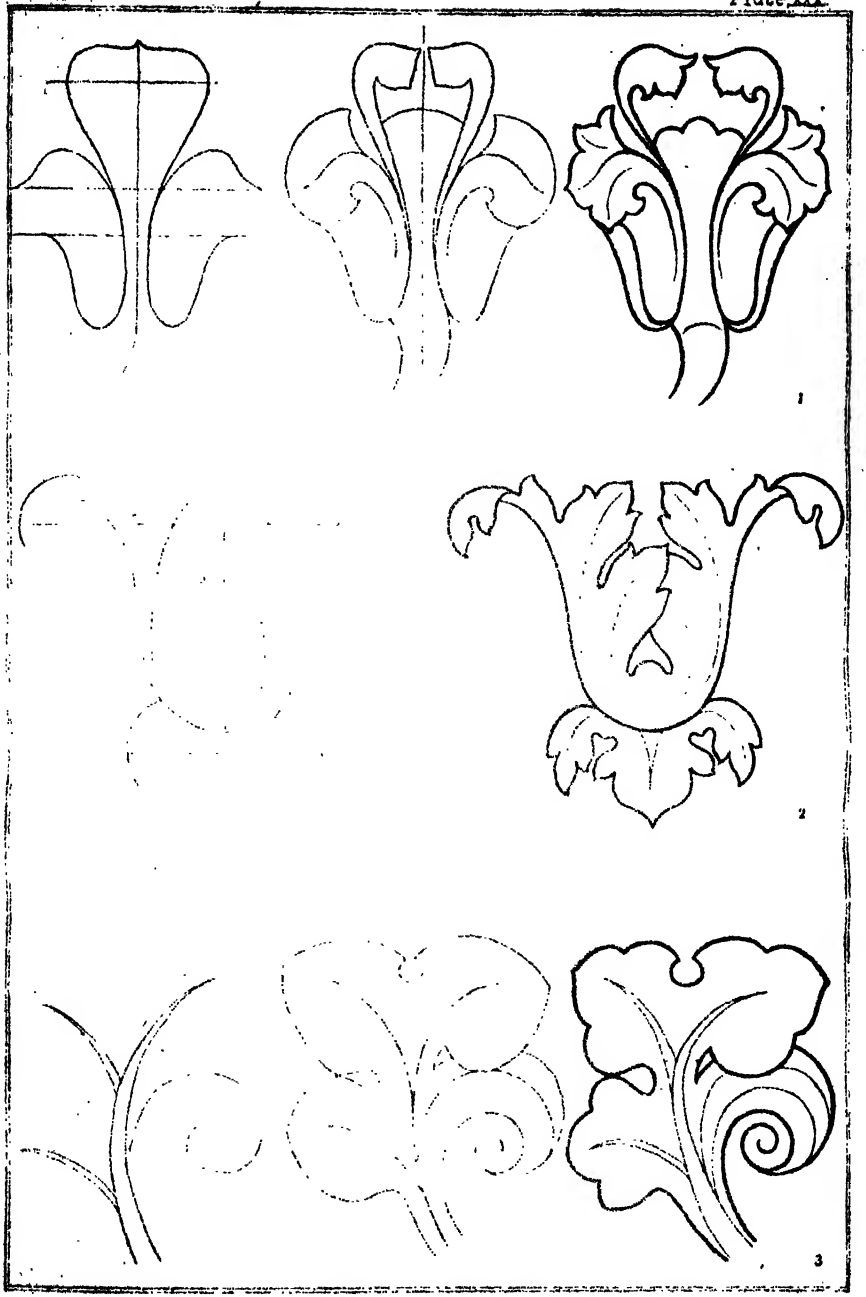
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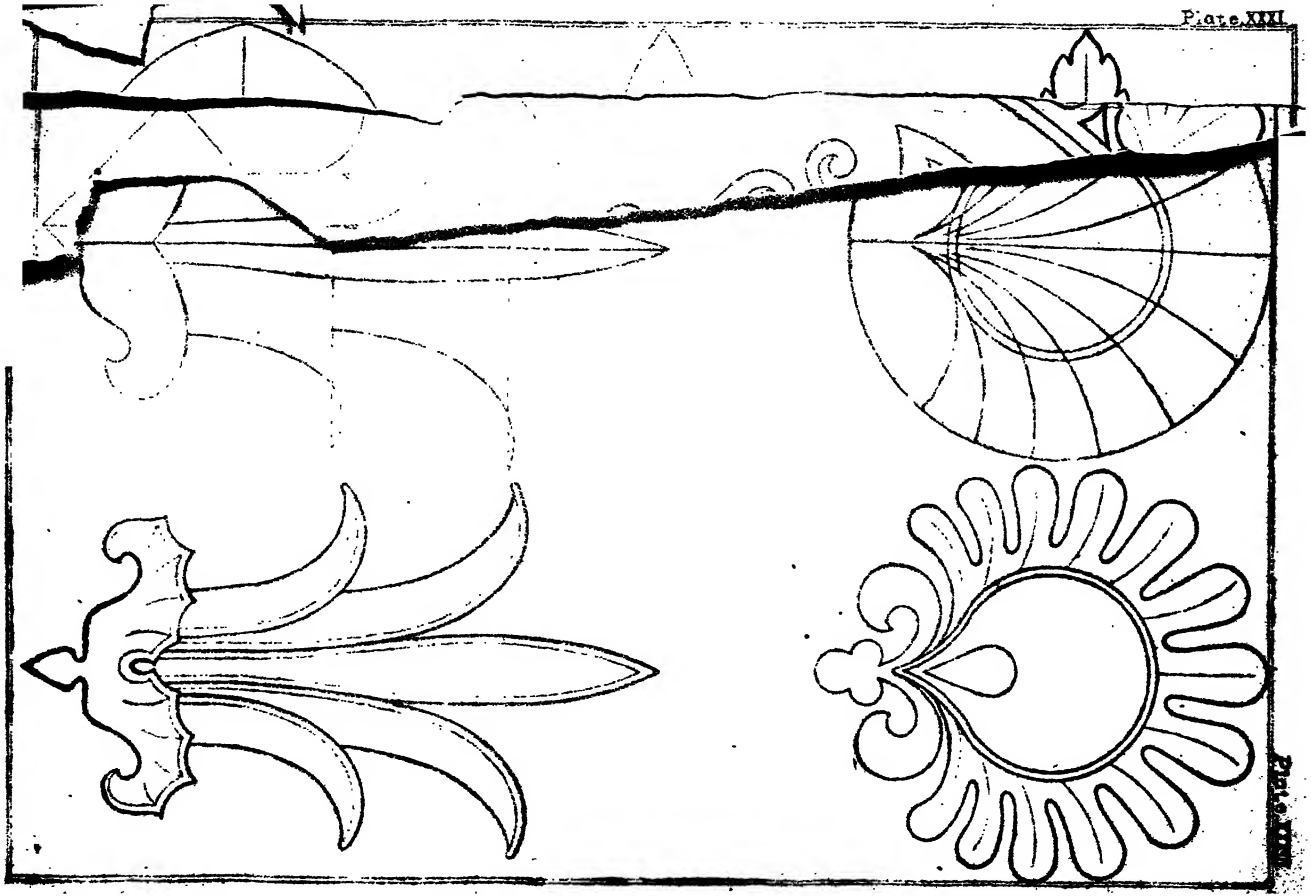


object in placing the example before them is that they may see how he proceeds to build it up, and thus learn how it and similar examples should be drawn. He should most rigorously insist that the pupils follow him and go not one step in advance, but copy his lines one by one *in the order* in which he has drawn them. Frequent examination of the pupil's work after every few lines will be necessary to secure attention to this important point, for the danger to be guarded against is one that will be ever present with the pupil, viz., the tendency to copy lazily without mental exertion, instead of understanding the example, and from this knowledge making an intelligent drawing. The pupil will often say that to begin at the top and take it bit by bit is easier than to begin by obtaining the proportions and main lines, and he is quite right; so it is no use saying that this right method is the easier. It is not easier to try and grasp the structure and meaning of the whole of the example, but the pupil must be taught that this attention to proportion and analysis is the only method by which a *right* result can be obtained. Instruction by means of the teacher drawing on the blackboard has been so strongly recommended in this book, not only because more teaching can be done by this means in a large class, and that it is well for the pupil to follow the teacher, for it is saying 'come' instead of 'go' (and there is a world of difference in this), but that the habit of building up rightly and intelligently shall have been acquired by the pupil before any completed copy is placed before him. The time has now come in which to trust him with a sight of the example, but constant watchfulness is required to see that he continues in the narrow path in spite of its difficulties, and resists the temptation of the broad road which leads to his artistic ruin. As an illustration showing how strong this tendency is, even in adults who draw well;—a student who was doing his sheet of analysis for the Art Master's certificate (a sheet done to show his knowledge of method) actually drew the completed portion bit by bit without

using the analysis he had shown to be the right method on the same sheet. See, then, that the proportions are attempted by all *before anything else is done*, and the same with the principal lines, and that nothing be copied from the completed example, but only from the blackboard.

The second stage of analysis, so necessary in most foliated ornament, is rarely attended to. This is explained in the diagrams, and its importance will be evident. It should also be noted that the shapes of these larger groupings of the foliated ornament are the same in character as the shapes of the final serrations (see *Fig. 1, Plate XXIX.*) Still continue to occupy the first ten minutes of each lesson with a memory drawing of the proportions and principal lines of the previous lesson. For Standard V. alternate the courses A and B, using examples on *Plates XXVI. to XXIX.*, adaptations of *Plates XXXVI. to XXXIX.*, and the examples on cards.

COURSE C.—Lessons in which the example is displayed to the class; the teacher drawing on the blackboard the proportional and main lines of the drawing only, leaving the pupils to complete from the example. *The pupils must again follow the teacher's work, until he gives the word to complete from the example.* As the teacher carries the drawing but a little way on the blackboard, he will now have more time for individual help and advice. In every lesson from the beginning, opportunity should have been found for *carefully* correcting a few drawings at least during each lesson, or for illustrating prevailing errors on the blackboard. Each pupil feeling that at any time it may be his turn for this individual correction, will receive from this a stimulus to hard and careful work, and by its means the good workers can be directed to a higher quality of feeling and exactness in their work, to the ultimate raising of the standard of the whole class; the laggers behind being also helped to step again into the ranks. It will be found that the opportunity for a larger amount of individual combined with collective teaching comes

just when most needed. The special powers and weaknesses, too, of each boy will have been brought into play by the previous lessons, and can now receive more individual attention. Their sense of beauty, grace, and delicacy of line can especially be encouraged by attention to what is known as 'lining-in,' which should never be understood as 'blacking the line,' but as completing, by uniform lines drawn after close attention to the minute delicacies as seen in the example. *The bad habit of lining or blacking-in without the copy should not be tolerated.* It is a very common practice, both in freehand and model drawing, and spoils many a good sketch, beside having a bad effect on the future work of the pupil.

COURSE D. — Lessons in which the completed example, upon which no construction lines, proportionals, or main lines are indicated, is to be placed before the class and copied by the pupils. This will give ample opportunity for the teacher to see how far his previous lessons have been understood, but he must be prepared to be disheartened.

Some will not have understood the principles underlying the previous lessons, many will be careless about applying their knowledge, and the best will sometimes make mistakes. Here, however, the teacher must take his stand. He must ask for the initial lines—the lines indicating proportion and construction—to be drawn by the pupils, without his suggesting which they are. He may give valuable help in correcting and improving the work of those who have drawn the right lines, and he must only allow these to go on to complete the drawing. *After one half of the lesson* has been thus occupied the teacher may indicate on the blackboard which are the right lines, and those who had failed either in the selection or in the correct drawing of the lines should repeat these to fill up the remainder of the time instead of completing the drawing. Any absurd errors in method could also be illustrated on the blackboard without naming the pupil. This is only carrying out the principles adopted in teaching other

subjects. It is the best preparation for the examinations in the standards, and what is of more value, it will awaken a new interest in life by bringing to bear upon the beauties of the outer world the faculties of inquiry and analysis.

COURSE E.—Lessons from complicated examples, the main *lines only to be drawn.*

Before the pupil's hand is sufficiently trained to undertake complicated advanced work so as to carry it to completion in its details, he will, by this exercise, be taught to understand and to analyse any complicated piece of ornament, and to this important extent he will be its master. This course, and also course D, are only copying from larger examples placed before the class, and yet, against the indiscriminate use of this method we have constantly protested, as only one degree less an evil than the old method of giving a separate example to each pupil and leaving him to copy it without previous instruction. If, however, the pupils have been taught to judge proportion and to analyse, this course will give proof that the lesson has been learned, for no drawing will, when finished, be a copy of the example: it will only carry it out to the half-finished stage, as shown in the *Plates XXVI. to XXXIII.*, hence indiscriminate copying is impossible. Samples of Lincrusta Walton, of Morris and other paper hangings, or chintz, can be obtained at little cost and form excellent additional examples for analysis of the principal lines. As already stated, course A will be sufficient for Standard IV. and courses A and B for Standard V. For Standards VI. and VII., and the second grade examinations of the Department of Science and Art, the method shown in each of the courses A to E should be given (*Plates XXVI. to XXXIII.*); the lessons for the year, comprising, say, at least five lessons in each method. No examples of natural foliage or objects are included in this freehand section, as conventional ornament best serves the educational purpose of this stage, and the drawing of foliage and objects from nature is treated

in the model drawing section to be taken concurrently with this.

The memory drawing should also be continued, allowing longer time than the ten minutes recommended in the earlier exercises, for as this memory power becomes developed the student will be able to remember nearly the whole of his exercise. Nothing will give greater pleasure to the teacher than the results of this memory work if the faculty has been gradually developed from the beginning, and there is no practice of greater value to the student. Occasional exercise may also be given in variation, as already explained in the section on squared paper, but using the examples of this chapter. In schools of art, and art night-classes, where casts of ornament are available, such as are simple and in low relief can be occasionally substituted for the copies. There are several sets of very elementary casts published in England, France, and Germany, suited for this purpose.

In concluding this chapter on proportion and analysis, I would again press its vital importance to all future success in art. Out of many thousands of time examination drawings, few have shown that this has been sufficiently or systematically taught, and by far the larger part has shown that no attempt has been made to teach it. The absence of this quality will account for many an elaborate and carefully worked drawing, so far as line is concerned, being placed below a less finished and more clumsy work as to line, but which gives evidence of attention to proportion, and shows a grasp of the essentials of the examples.

Every one will admit the importance of a power of analysis and proportion in composition and design, but it is almost equally an essential in the purely technical part of painting. Amateurs and artists have often said, in speaking of their studying from Nature, 'The difficulty is to know what to leave out,' referring, not to composition or selection, but to the actual rendering of any subject already chosen. This phrase is so

common that for a long time I echoed it with a faint, half-hearted 'Yes,' although I was powerless to help and advise, because I had never felt this difficulty. No one should begin a study by asking himself this question. If he has a power of analysis and proportion he will, consciously or unconsciously, determine the *order* in which he shall grapple with all the essentials in the subject before him, according to their several degrees of importance and relation to the whole. This, if adhered to, will solve the difficulty, and will also help to determine the much-vexed question of finish and keeping. All in the subject will be suggested or fully expressed, according to time and materials.

In connexion with this book is published a gradated series of examples for individual use by the student. Each example is also published in packets of twelve for use in classes; also a large series for class teaching in courses B to E. No diagrams of method are shown on most of the examples in the small series, as this would defeat the main object of their use, but for ready reference by the teacher very small diagrams are shown on the large examples.

CHAPTER X.

FLAT TINTING IN COLOUR.

VERY many of the examples in these five courses can be further expressed as masses by flat tinting of the ground or the ornament by means of lines from right to left, as already explained in earlier Standards.

In Standards VI. and VII. and in the freehand course in schools of art and art night-classes flat tinting by washes of colour may with great advantage take the place of the lines hitherto used.

Sound teaching of freehand and model drawing has only of late years made its way in any degree into our elementary schools, because the teachers were not properly trained, through no fault of their own. This is the result of a system which spends many thousands a-year in spreading and paying for this teaching, and neglects to encourage and insist upon the thorough and sound training of the teacher, in the first place, by spending a few thousands more on the training colleges. The result has been much waste of labour both by teachers and pupils, and the promulgation of errors and bad methods, which will take much time and cost much money to eradicate. The same process is now being begun with light and shade, which is one of the new subjects for Standard VII., and there will be the same spread of false and imperfect teaching, but the blame cannot be laid upon the teacher. This subject also requires much individual supervision, for the correction and explanation

of one pupil's work during class hours is a slow process, requiring much thought and time. The conditions of lighting in day schools are such as to make its successful teaching almost impossible, and to cause the spread of errors, which will afterwards require uprooting. We venture to think that flat tinting in colour should have been the added subject, for the following reasons :—

(*a*) Collective teaching can be largely used.

(*b*) It can be perfectly taught under present conditions as to school buildings.

(*c*) It is easy to learn and can be taught by every school teacher.

(*d*) It can be taught by and to all who have a fair knowledge of freehand only.

(*e*) It is of more extensive use in the industrial arts, from machine and architectural drawing, and designs for manufactures up to high art.

(*f*) It is intensely interesting to the pupils.

(*g*) It gives a new character to their outline drawings.

(*h*) It stimulates their colour sense.

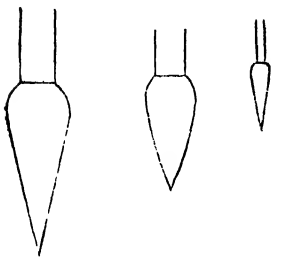
This latter point alone is worth every consideration. Specialists assert that colour blindness is very prevalent, but may we not venture to hope that, in many of these cases, it is the colour faculty which is dormant through its education being neglected for several generations, and is with difficulty roused into action, rather than the existence of an organic defect in every case. In all my experience I have never met with a case of colour blindness. In some pupils, especially if they have been told that they are colour blind, and that it is a family defect, it is very difficult to get this sense into action One case was a thorough failure for a time. The student painted red roses black until I found out a scientific pursuit or hobby of his. Without giving him any indication of my object I made use of some specimens he had collected in

pursuit of this hobby, as exercises in colour. Eureka! The colour came, for every spot of colour represented to him a scientific distinction of one specimen from another. In other cases which have been declared by high authorities to be hopeless, even for two or three generations to come, the students have developed a keen and artistic sense of colour in their work and an unusual delicacy of perception.

Our one-sided education has much to do with this dormant state. I was venturing to discuss the question with an eminent oculist, and the thought occurred to me, should there be more men colour blind than women it will be a strong support of my argument. I asked the question, and his answer was, 'There are many more men than women who are colour blind.' My reply was that one reason of this so-called colour blindness is that men are politicians while women are not. All young children of both sexes rejoice in colour; colour more than form excites their happy attention. In girls and women this faculty is allowed to develop; its exercise is part of their lives, but with boys and men it is smothered by the development and exercise of those powers which are most useful in making money and in governing. Even in the liberal education of our universities, the language, life, and history of the Greek is taught in such a manner as to leave no room or time for the consideration (and still less for the development in us) of that artistic faculty which constitutes their great glory above all other nations. It seems at least possible that many cases declared to be hopeless through organic defect are not really so, and that the faculty can be developed if the education begins early.

Whatever develops this faculty in early life is, therefore, of great educational value, but this must be something more than distinguishing colour by naming it. Care little what the child calls it if he has given you a pleasing colour harmony, or has even succeeded in copying any colour placed before him. The

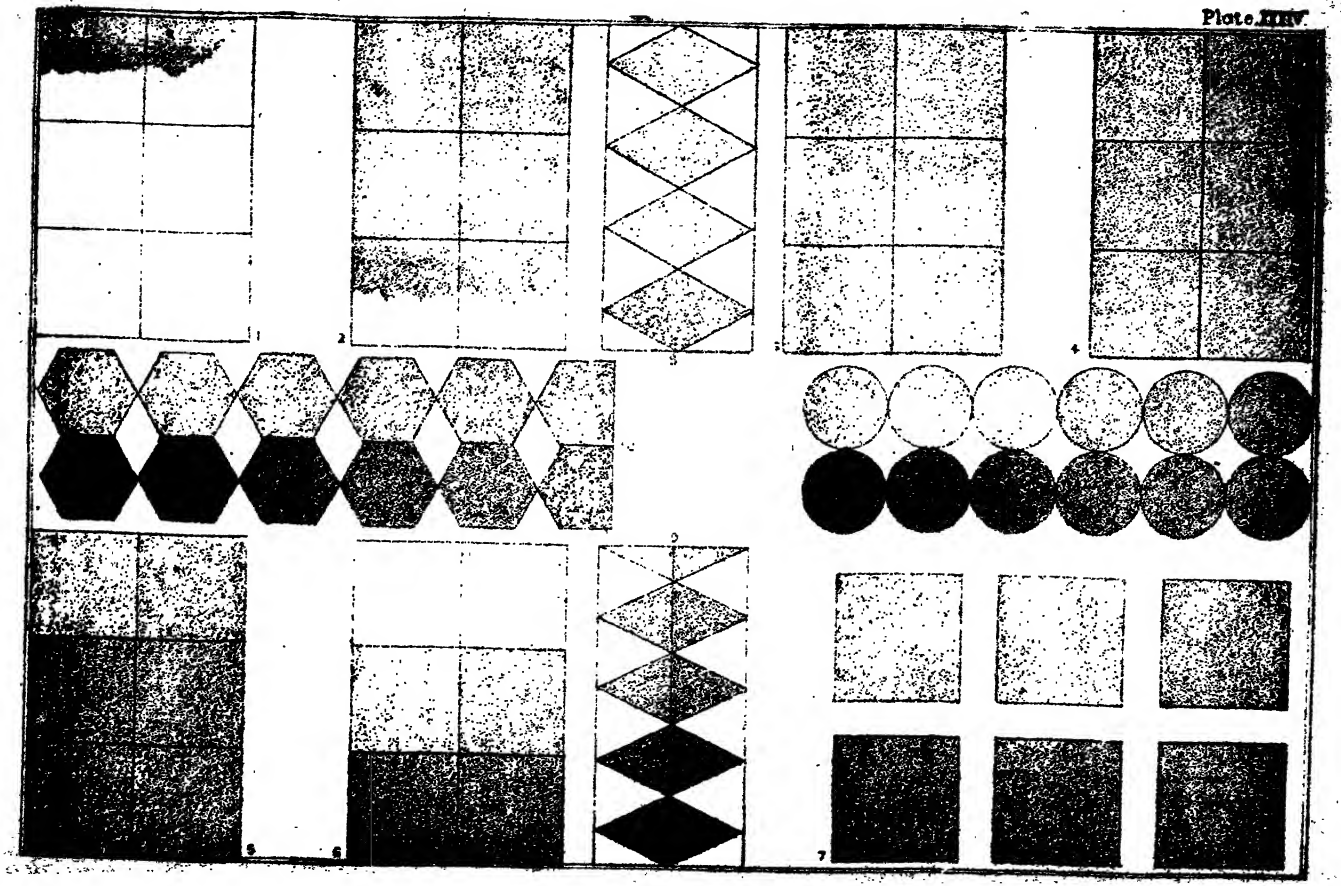
materials required are a cartridge paper pad, about fifteen inches by ten inches, containing forty sheets (cost 1*s.*) or a drawing board and paper, each sheet of which must in this latter case be strained as wanted. To strain the paper it is only necessary to turn the edges up all round, say half an inch, wet the back of the paper, leaving the edges dry. Cover these edges with paste or glue and press them to the board. In the pad the paper is already strained.



Three round camel hair brushes in quill, which will cost but a few pence, and should be about the sizes shown. Sable brushes are better, but are much more expensive. Nine cake water colours (one penny each)—Prussian blue, indigo blue, crimson lake, light red, emerald green, burnt sienna, raw sienna, yellow ochre, gamboge—two small saucers, a piece of blotting paper, and a small bottle to hold water. The board or pad should be placed on the inclined desk, or if the desk is flat the board can easily be held at a similar angle. When laying on flat tints the paper should never lie horizontal or be upright. The inclination of most desks is the right slope.

The following exercises should be given before the ornamental forms are allowed to be tinted :—

I. Rule the paper into two sets of six squares, leaving a space in the middle of the paper between each set (*Plate XXXIV., Figs. 1 and 2*). Wet the paper with the largest brush and dry off with the blotting paper. It will be ready for use while damp, providing it is not so wet as to cause the colour to run down. In a saucer mix, by rubbing, a very light tint of one of the colours, say indigo. Using the large brush, cover over each half of the paper by the following process, *which must be carefully adhered to in all future washes.* With the brush well filled with colour commence at the top left-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hand corner and move along the top edge of the left half of the paper, making at the same time a series of short slanting strokes from right to left less than an inch long, each to be the full width of the brush and touching the previous one. Keep the brush well charged with colour so that the lower end of the strokes will always be flooded with colour (*Fig. 1, Plate XXXIV.*) This will keep it moist and prevent a hard dark edge being formed. Starting again at the left hand of this line of superfluous colour and touching it, make another series of slanting strokes, with a well-charged brush (*Fig. 2*) repeating this process until the lower edge of the space is nearly reached. As you approach the lower edge of the portion to be tinted, gradually reduce the amount of superfluous colour on the paper and in the brush, so that as you work down to the lower edge all the superfluous colour is exhausted. Should, however, any remain when the space is covered, place the point of the brush on the blotting paper for a moment, then with the brush gently take up the wet colour at the lower edges. It will be absorbed by the capillary attraction of the brush, and the result will be a flat tint, as in *Fig. 3*. Be careful to make only downward strokes (not up and down), nor horizontal, except at the beginning, so far as is necesary to work up to the top line of the space in making the first series of strokes with the brush; and on no account go back to retouch any portion partly dry, for this will make the error worse. The main thing to bear carefully in mind is to keep the lower edge of your wash constantly wet with superfluous colour by a well-charged brush.

If a teacher can have this process shown to him by getting a draughtsman or fellow-teacher to lay on a flat wash in his presence, he will be struck with its simplicity and the ease with which such a process can be taught to a pupil. Yet many an otherwise good water-colour drawing from nature, or machine or architectural drawing is often spoiled for lack of this little bit of technical knowledge. While this first wash is drying, lay

a similar wash on the right half of the paper. By thus working two or more examples at once, time will not be wasted, for the wash on the left half of the paper will now probably be dry enough to work on. By the method already explained lay a second wash with the same tint over all except the upper square on the left hand (*Plate XXXIV., Fig. 4*). Continue this process on each diagram, covering one square less each time until, in the last wash, only one square has to be tinted (*Fig. 5 and 6*). The exercise will be perfect if the washes are flat on each square, if the edges of each square are well kept, and if the gradation of tint from the first to last square is equal throughout.

II. Divide the paper into a number of equal squares, but in this case isolate the squares by leaving a space round each (*Plate XXXIV., Fig. 7*). Damp the paper as before; mix a very light wash in the saucer, and lay it on the upper left-hand square. Then rub a little more colour into the wash to darken it, and lay this tint on the second square, after testing the depth of the tint on a spare piece of paper. Again rub a little colour into the wash, and lay this darker tint on the third square. Proceed in the same way with a darker tint for each square, until the paper is covered. The squares are isolated to prevent the washes touching while wet, which would spoil both squares. The aims should be to secure a flat tint on each square, the accurate filling of each, and a uniform gradation of tint between the lightest and darkest square. Repeat these or similar exercises until these results are obtained and technical excellence is secured. Two exercises of each will, as a rule, be sufficient; but if more should be needed, vary the forms by dividing the paper into equilateral triangles, lozenge forms, or hexagon and lozenge, &c. (*Plate XXXIV., Figs. 8, 9, 10, and 11*), and such forms as are given on *Plate V.*, all which may be constructed with the set square. Then a selection from the following:—*Plate VII., Figs. 3 to 10; Plate VIII., Figs. 1, 4, 7, and 9; Plate IX., Figs. 1, 2, and 6; Plate XI., Figs. 2, 3, 4, 6;*

Plate XII., Figs. 1, 2, 3; Plate XIII., Figs. 1, 3, 4, 5; Plate XIV., Figs. 1 to 6; Plates XV. to XX., and *Plate XXVI., Figs. 1, 2, 4, 5, 6*, by tinting the portions of the pattern as shown, only with wash instead of lines. In most of the examples on *Plate XXVII.* and the following plates, it will be well to tint the whole of the pattern, leaving the ground white (Fig. 1), or else enclose each in a rectangular form, leaving a space all round the

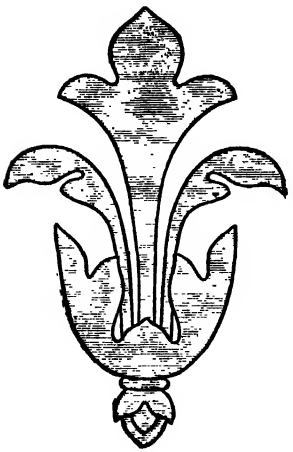


Fig. 1.

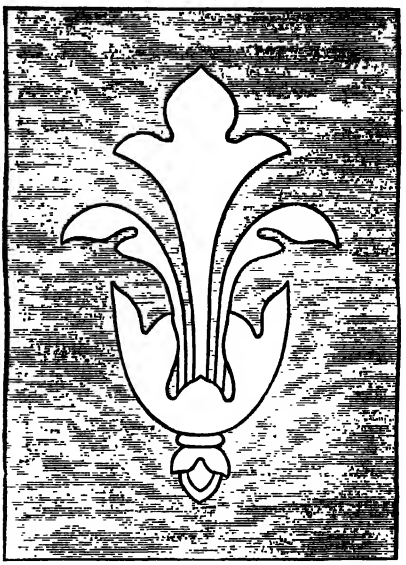


Fig. 2.

pattern (Fig. 2), and tint the background, leaving the pattern white. In these exercises let the student use from the beginning any one of the nine colours, only requiring that the more brilliant, such as Prussian blue, crimson lake, emerald green, and gamboge shall be used as light tints only.

The spaces to be covered in these later examples are more complicated, but if the pupil is careful to employ the method already explained, for laying on a flat tint, keeping his brush well charged with colour, he will have time to give attention to

the varied shape without fear that any portion of the unfinished wash he may be compelled to leave for a moment or two will dry and form a hard edge.

Do not allow the colours to be mixed at present. Let the effect of this be obtained at first by super-imposition of colour as follows:—On one sheet the pupil should make three drawings of the same pattern (*Plate XXXV., Figs. 1, 2, and 3*). Cover the pattern of each with a wash of Prussian blue. He should now mix a tint of any one of his other colours, say raw sienna, and cover the whole of *Fig. 2* and the ground only in *Fig. 3*.

Three distinct expressions will thus have been secured:—

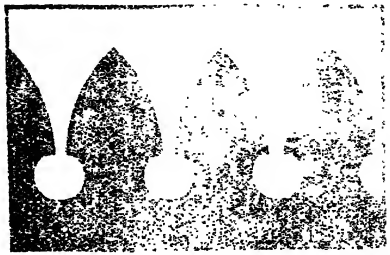
(*a*) The effect of Prussian blue contrasted with white paper.

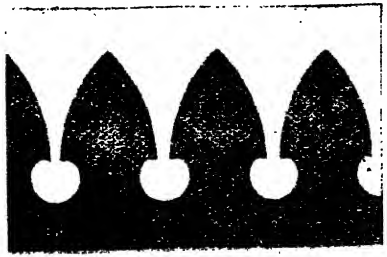
(*b*) The effect of Prussian blue and raw sienna combined on the pattern, and this colour contrasted with raw sienna on the ground surrounding the pattern.

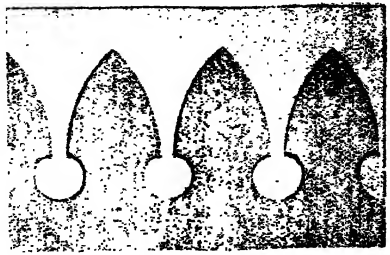
(*c*) The effect of Prussian blue alone, contrasted with raw sienna on the ground.

The greatest harmony of colour is in the second—the greatest contrast in the third. The blue in the first and third, although exactly the same wash made on white paper, will not appear the same either in tone (depth) or in colour (hue), because in the third it is surrounded with a colour deeper and warmer than the white which surrounds the first. In *Figs. 4, 5, 6*, a similar process has been adopted with Prussian blue and crimson lake, only that the blue is laid over the ground of each instead of over the pattern. Try all the colours in a similar manner, using different forms.

These changes of appearance in tone and colour of one and the same absolute colour pigment, can be shown in a very clear and interesting manner to the class. Obtain a piece of *pure* grey lining paper and cut four pieces, each about three feet long. Obtain a sheet of bright red (vermillion), bright blue, bright green, and bright yellow paper of the same size as the







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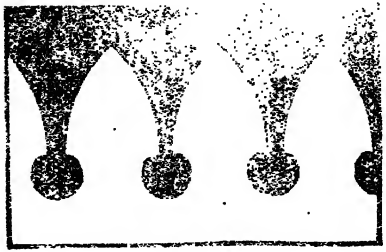

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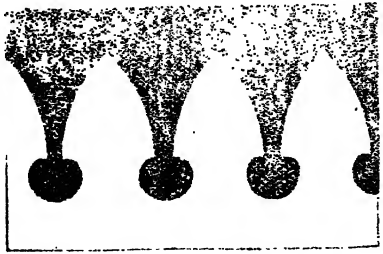

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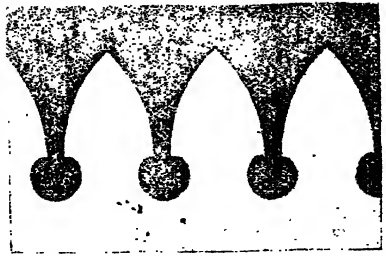

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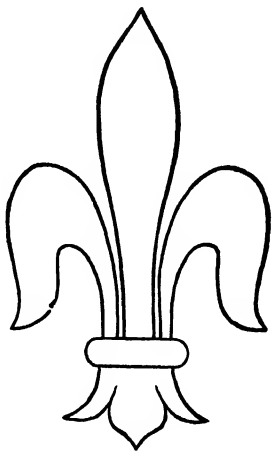
grey pieces. Cut out of these coloured papers any pattern such as shown in the diagram.

Paste the lower edge of each coloured sheet to the lower edge of the grey paper, being careful that none of the grey paper is seen except where the pattern is cut out. Pin each diagram on a wall some distance apart or on separate blackboards. Ask the pupils to look at the red diagram intently for at least a minute, and then to write down on their papers or slates what is the colour of the pattern, being careful to give no hints, or suspicions of a trap or catch. Most of the answers will be green, blue-green, greenish, or green-like. The grey is no longer grey, but is made decidedly green by contrast with the red surrounding it. Ask the class to look intently at the blue sheet for a minute, and again ask that the name of the colour of the pattern be written down. Most of the answers will be—dull orange, brown, or yellowish. Proceed in the same manner with the green sheet and obtain written answers, which will generally be pink or purplish, or purple-grey. Now unpin the coloured sheets and let the pupils see that the patterns they have been describing as so different in colour are all cut from out of the same sheet of grey paper, and enforce the lesson that all colour is relative and depends upon contrast. The contrast of each colour may be seen by the well-known illustration of the red, blue, or green wafer on a sheet of white paper. Place the paper in a bright light with the wafer in the centre. The pupil should look at the wafer intently for a minute, and then suddenly removing it, he will see a green, yellow, or purple circle in



its place (according to the wafer used), which will gradually disappear.

After acquaintance has been made with the nine colours, and combinations of two by flat washing without actual mixing of the colours, this latter may now be attempted, limiting it to the actual admixture of not more than two colours, so that the pupils may ascertain and, as it were, calculate their possibilities. In some of the patterns it will be possible to colour separate portions of the pattern with different colours, and a still further development will be secured by mixing some of the colours with a little Chinese white, noting the change they undergo as distinct from that produced by diluting them with water. Try first a mixture of burnt sienna and white, note the change in colour as contrasted with the same tint or tone produced by mixing it with water only. An almost infinite variety may be obtained without any further mechanical training, and thus full play can be given to the exercise of the colour faculty, and most of the drawings which appear in this book as somewhat dry outlines can be made fascinating studies, and a technical power safely and easily matured which will be of great use in almost any career

More than this, the teacher himself will acquire knowledge from the experiments of his pupils, and his highest artistic instincts will receive constant, and often pleasant, surprises by the results of these combinations, especially if both teacher and pupil keep their eyes open to note any pleasant harmony or contrast of colour they may see in nature or in art.

Further expression by gradation of tone and colour will be reserved for the section on light and shade, but a few exercises may now be given in the rapid use of the brush analagous to the writing exercises already given in Standard III. The brush tapers to a point and is flexible; it is therefore easier to make these shapes,

than to draw a long line of even thickness, curved or straight. The most difficult of all is a long straight line of even thickness; the easiest are curved lines, thus—

Examples for practice are given on *Plates XXXVI. to XXXIX.* The student should look carefully at each form before touching the paper with the brush, and paint it at once as nearly like the form as he can recollect, avoiding patching and retouching. Make the greatest possible use of the brush as a flexible tool which will give forms of varying thickness and shape, according to the pressure. Vary the colour in these exercises.

When this power of brush work has been acquired it may also be exercised by lining round some of the freehand examples with brush instead of with pencil. Attention may be drawn to the influence of material on the nature of ornament. Any one who has seen the pottery painter at work on the dry, biscuit surface of earthenware, and who has studied the early Greek vases in the British Museum or illuminated missals will see how much the type and developments of the forms arise from the use of the brush by the human wrist. The so-called Greek honeysuckle originated, not from the flower, but from this play of the wrist and brush, exercised ages before the Greek, and similar influences are at work modifying all styles; for examples, the necessities and ideas resulting from basket-work and weaving, the direct carving on stone, or the carving after first modelling the idea in clay, and the use of terra cotta, have had a large share in originating and directing the ultimate development of the styles. The foliated forms of

Early English Gothic probably resulted from the brush forms of the illuminated manuscripts of an earlier period.

The work for each Standard has already been pointed out, but we may summarise what should be comprised in an elementary course in freehand from the flat for schools of art and art night-classes.

(*a*) Selection from the exercises on squared paper, the number and degree of difficulty being determined by the general capacity and previous knowledge of the class.

(*b*) The exercises in variation as early practice in design.

(*c*) The writing, or rapid exercises.

(*d*) Proportion and the study of vase forms.

(*e*) The five courses of analysis.

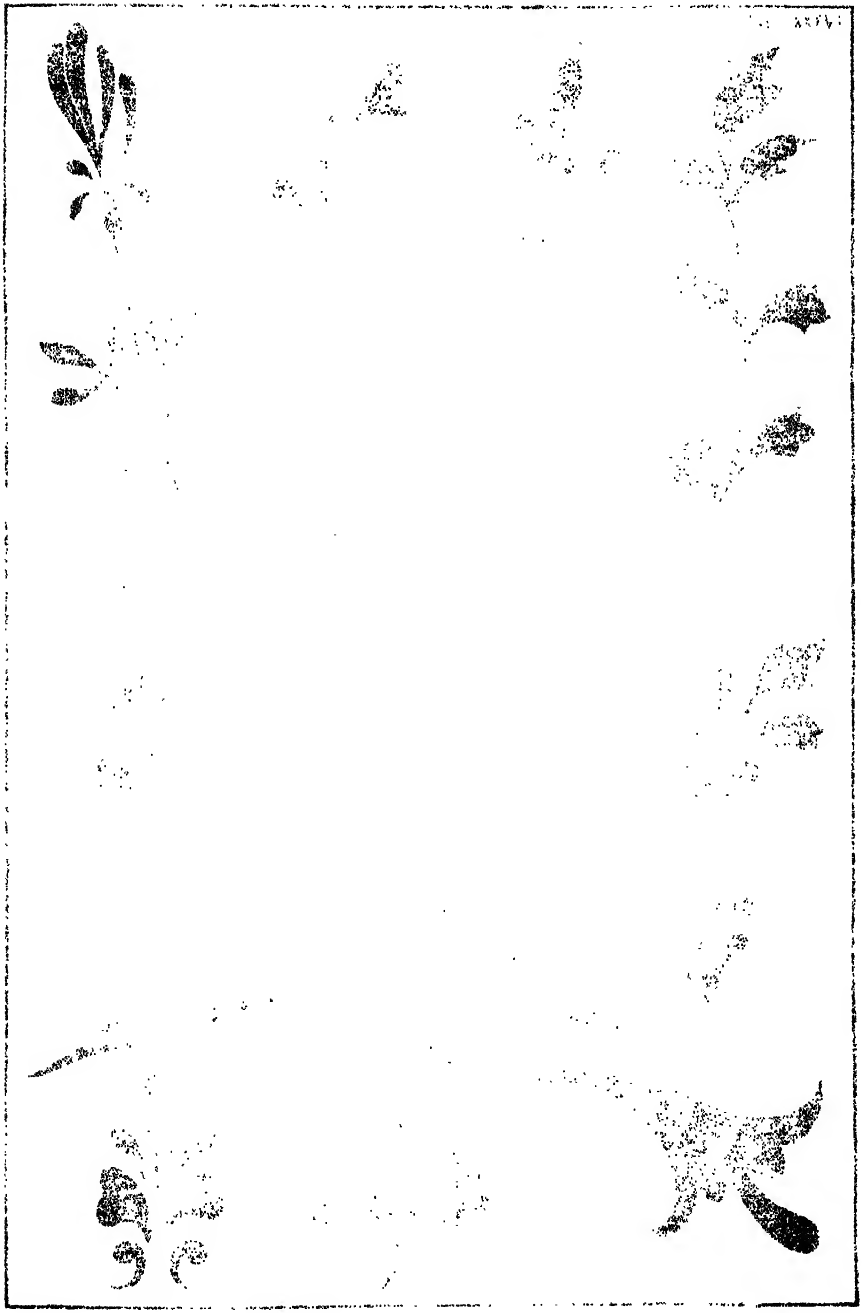
(*f*) Flat tinting by line and by colour.

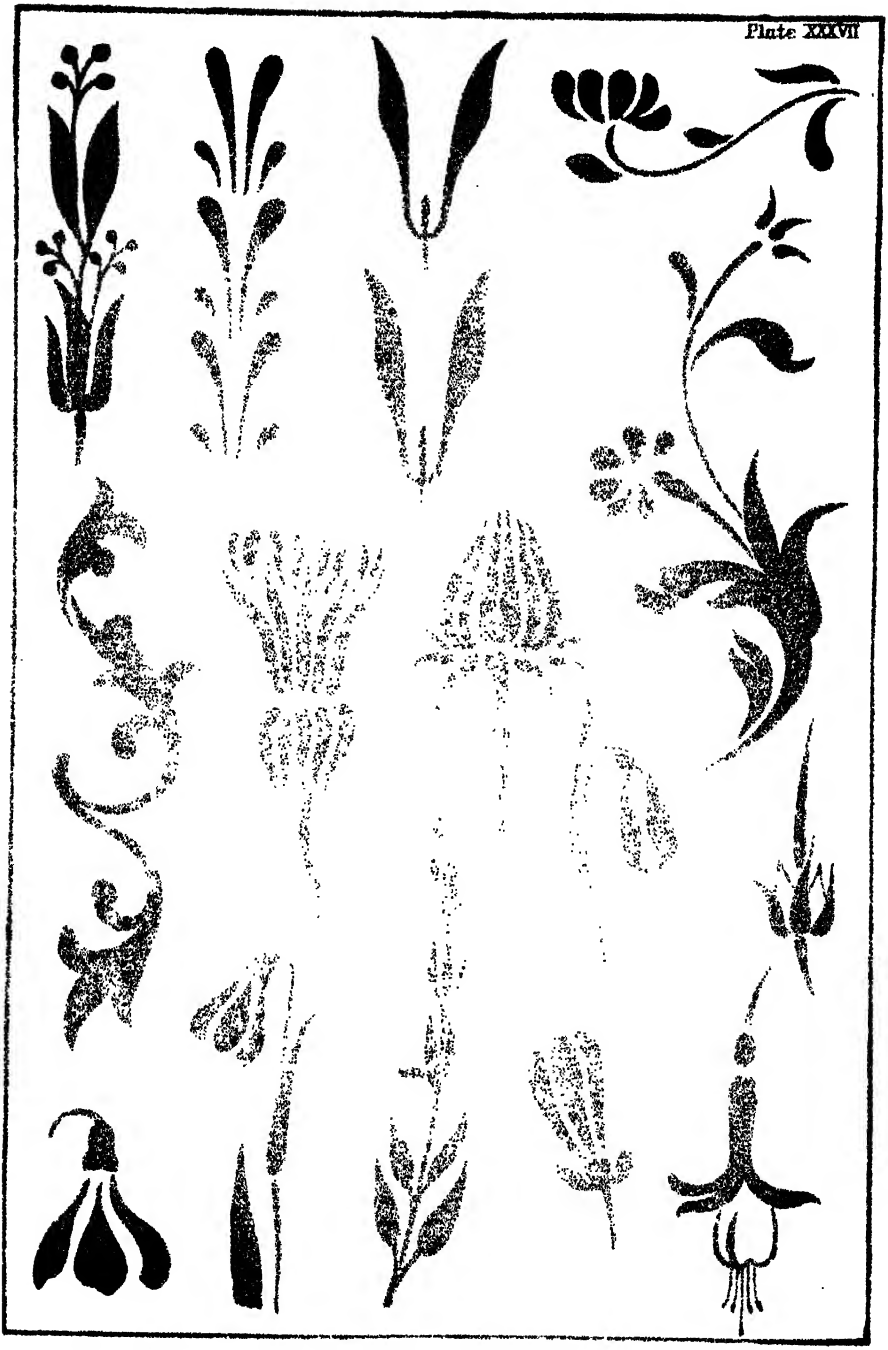
(*g*) Memory drawing in all sections.

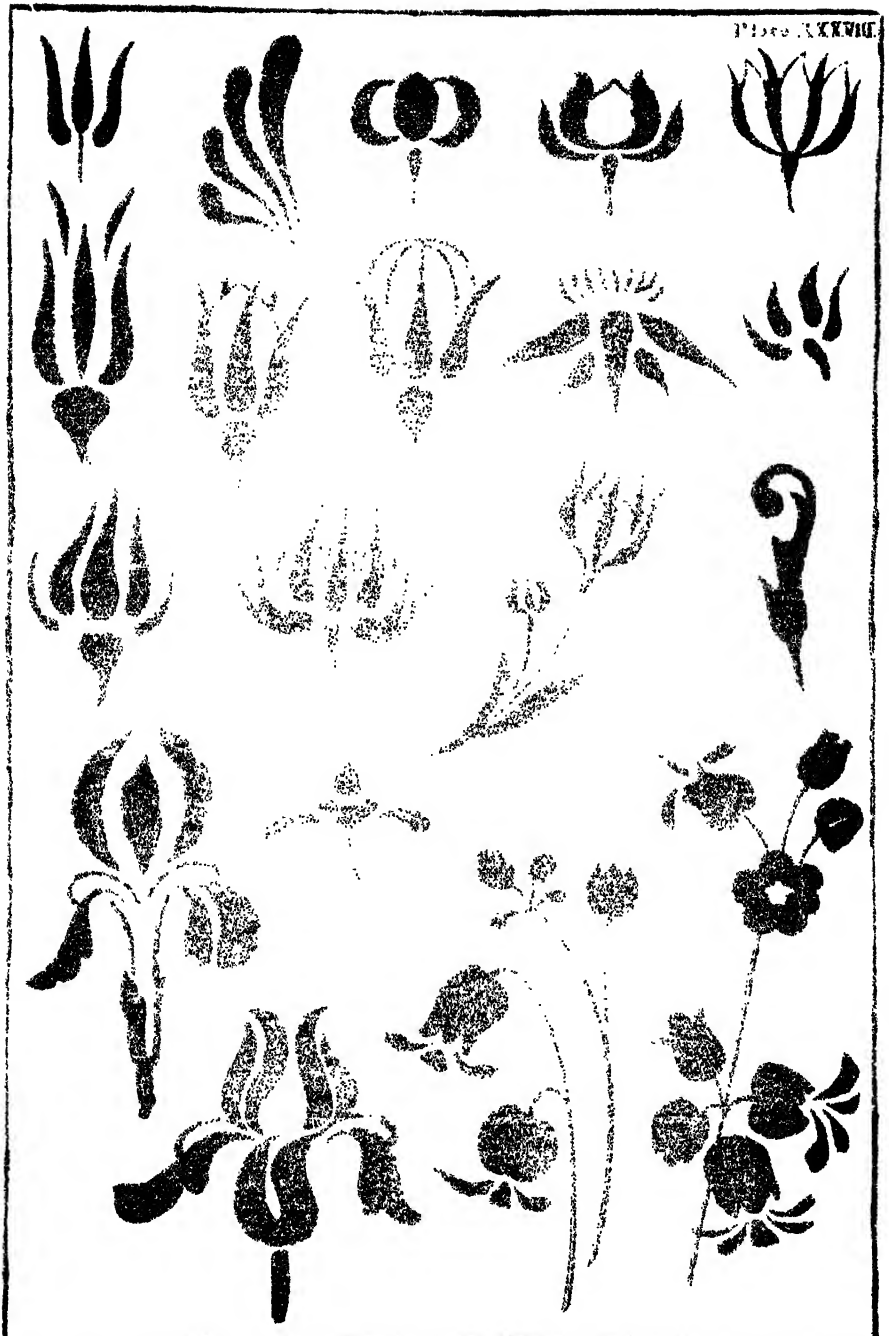
(*h*) Definition of geometric forms and terms.

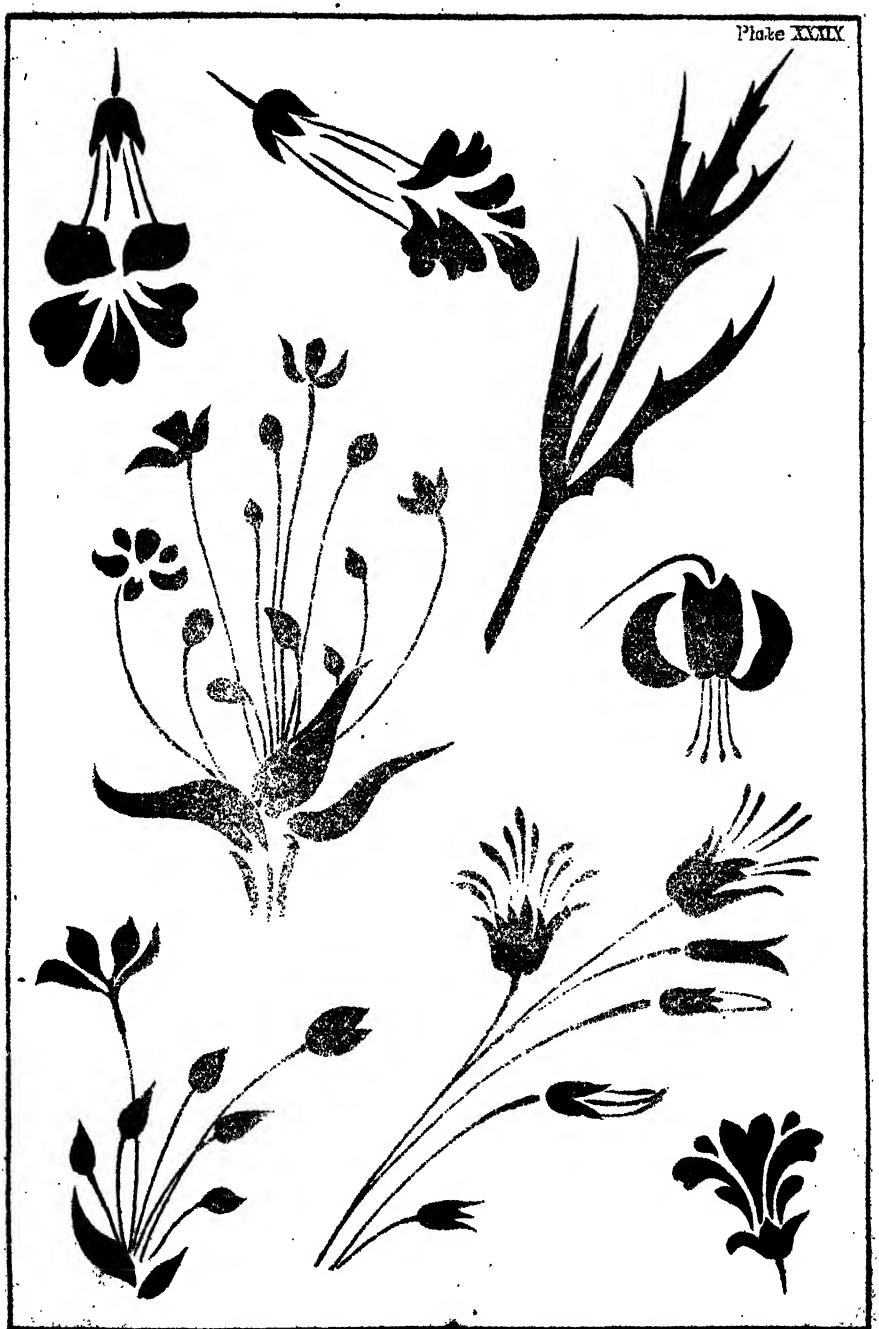
(*i*) Drawings from description.

Plane and Solid Geometry, Model Drawing, and Light and Shade for the Standards and for Schools of Art are dealt with in succeeding chapters.









CHAPTER XI.

MODEL DRAWING.

THE work, so far, has been from the flat, and its degree of accuracy can be tested, not only by the eye, but by actual measurement. We have now to teach how to draw objects in which appearances may—and do, generally—differ from the geometric facts, or facts of measurement.

A teacher with but a slight power of freehand drawing can manage to convey much instruction so far in the course, for the pupils work from his drawings on the blackboard, and if these are not of the best, the pupil can at least learn to copy accurately; while, if an example is used by each pupil, it is not difficult for a teacher with but a very limited power of drawing to point out errors in their work. In saying this, I do not quite endorse the sentiment expressed by the principal of a ladies' school where drawing was charged thirty shillings a-term as an extra, who informed me that she always took the drawing, although, as she said, 'I never learned drawing and cannot draw a bit, but I have been a good deal among it.'

To teach model drawing, however, requires from the very beginning that the teacher shall be perfect master of the subject and able to draw from nature correctly, or this nature will expose him to his pupils; while on the other hand, every error made by a pupil in model drawing which is allowed to pass uncorrected, does a much greater injury to the child than an error overlooked in freehand drawing.

Diagrammatic drawing is almost as old as the hills, and errors in this drawing from the flat are generally seen and understood as errors by the ignorant, or those only partially initiated, even if they have not the power to correct them; but it took all the ages until the fifteenth century to evolve completely this second sight which enables us to see the appearance of things as distinct from what they really are, and therefore this latter faculty is more dormant. Hence errors are not so easily seen to be errors by the pupil in model drawing as in freehand, and therefore, if not corrected, pass current as right instead of wrong. This necessity for a complete mastery of the subject before it is possible to begin to teach it, is probably the reason why teachers in our day schools are advised to make use of perspective rules in their earliest lessons in model drawing. To do this, however, is like using a remedy which is worse than the disease, for it is impossible that pupils at this stage can understand and apply these rules correctly. *Such a method is unnecessary, fails in its purpose, and is hurtful.* It is unnecessary, for there is a shorter and sure road. It fails in its purpose, for it does not of itself secure accuracy in the simpler models, but on the contrary is answerable for many errors which would not otherwise be committed, and is altogether unpractical when applied to the few curves of a simple leaf or the convolutions of a shell. It is hurtful, for it substitutes that which in the hands of the pupil is a false and unreliable creed, for the education of the eye and the resultant power to see and judge correctly for himself. *No one, until he is thoroughly master of perspective, can apply it to model drawing, and then only if he is also a thorough master of model drawing.* All you can tell the child does not touch the real difficulty, for the utmost you can impart by worrying him with these rules is, that horizontal lines in certain positions appear as slanting lines, and that objects become smaller as they are further away. Now, it is not a difficult matter to *prove* to a child that a line which is horizontal appears to him in a certain

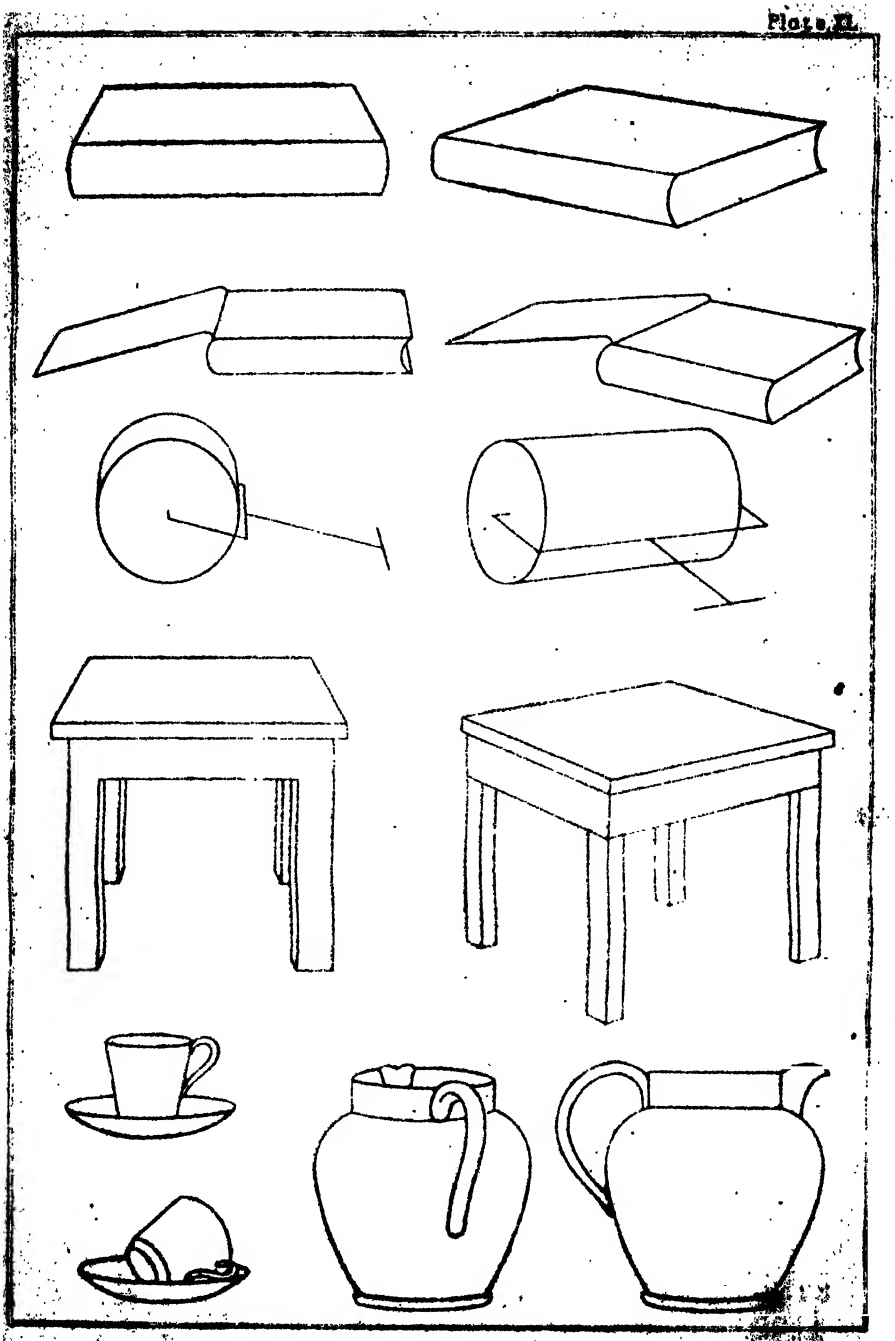
position to be slanting upwards to the right, without troubling him with the rules—the 'must be so' of perspective. The real difficulty is how best to teach *him to judge for himself*, out of a thousand lines that may lean to the right from one point, *which is the only right one.* Again, it is not difficult to *prove* to a child that of two equal lines the one further away will appear smaller than the other—the difficulty is to teach him to judge *how much less;* and in these—the real difficulties—this freehand perspective, as we may call it, is of no help. Whenever the rules of perspective are thus attempted to be taught at the beginning of a course of model drawing, even to youths, and men, and women, a great evil invariably follows, viz., *their substituting these rules for the power of seeing.* If the lines go up or go down, as the case may be, they are content, and the power to see and to judge the degree of this inclination, instead of being developed thereby, is paralysed with most fearful results; for this habit being once formed it is most difficult to eradicate and to substitute for it individual judgment by the pupil on the forms before him.

Let us see what is involved before we can secure any further or more definite help than the above, by means of perspective. It is necessary for the pupil to have such an intimate knowledge of a somewhat abstruse science, based on the laws of solid geometry and radial projection, as shall enable him to apply the rules of this science, without the mathematical data which are absolutely necessary in working out a perspective drawing. Further, no one, even thoroughly master of the science, can make use of it in model drawing until he has—at least in one portion of his picture, and by the aid of his power of model drawing alone—obtained fairly accurate data as a substitute for the mathematical facts of size and position which are necessary for working out a perspective diagram. In model drawing, as in so many other subjects, practice must be in advance of theory. Let the child make his perspective—do not let perspective mar the child.

We have to convince each pupil how the lines look to him in his *individual* position, for each sees a different picture of the object before him. The necessity for this initial lesson individually to each pupil is a difficulty, especially in large classes, but it must be faced, and not shirked. We do not try to teach twenty children at once how to hold the pen in writing, for each little hand must be guided one at a time, and we must come down to this individual teaching in the *first* lessons from the model. Several ingenious methods have been tried so as to begin by collective teaching helped by perspective rules. One is to place the pupils as nearly as possible in the same relative position to the model, and to draw a typical example on the blackboard, which, however, is the appearance to one pupil only. The result is that *this typical example is copied, and the model is not studied*, even in classes of teachers, therefore how much more will this be the case with young children. With a solution of the problem before them, although a correct solution only to one pupil, and to all the others false and misleading, it is too much to expect of children's human nature that they shall work out their own varying solutions from the model itself, especially when the faculty by which this can alone be accomplished lies dormant, and has not been brought out by demonstration.

Another method is to place cardboards, with lines on them, one on each desk in front of the pupil, each at the same angle, and to draw on the blackboard the appearance these lines should present to the pupil. Here again the pupil has to accept this version as right without proof, and will accept and draw from the blackboard with little reference to the model in front of him. There is also another great disadvantage in this method, viz., that the model is so small, and so near the eye, that the least change in the position of the head of the pupil causes the model to appear widely different from the drawing on the blackboard.

In objecting to the introduction of perspective in the first



stage of model drawing I am aware that I differ from many authorities, and now that art teaching is spreading, and this subject has to be taught to large classes, there is a growing tendency to be content with a crude application of these rules. Early in my career as an art teacher I found that this method was worse than useless, and bitter and weary experience in uprooting the crop of weeds it has produced has confirmed the view then formed. In one school I found this method had taken the place of earnest teaching to see and to judge and express proportion. As a consequence there scarcely existed any standard of right and wrong, even through the work of the higher stages. No theory or generalising would cure this evil, and I set to work to teach each individual student. At the end of the year, with classes about the same in number, the results of the science and art examinations in model drawing, as compared with the previous year, were as follows:—

	Prizes.	Certificates.	Fail.
Old method	1	9	13
New method	42	68	9

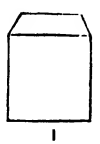
The only safe intermediate step between the drawing of flat diagrams, to which we have hitherto been limited, and the first individual instruction from the actual model is the practice of copying drawings of objects with which the students are familiar, either from the blackboard or from examples, each object being shown in two or more positions on the same sheet, or on the blackboard, as shown on *Plate XL.*, but without any reference to perspective or to the actual model while the drawing is being made. This object drawing from the flat is only necessary with very young pupils, and need occupy little or no time with those beginning model drawing after the age of twelve or thirteen.

Let us here note what powers have been already developed in the pupils by their instruction up to this point. They have

acquired the power (*a*) to make freehand drawings from the blackboard on a scale differing from that of the example; (*b*) to measure proportion by holding the pencil between the lines and the eye; and (*c*) to express by the lead pencil on paper any proportions they can be taught to see.

We have only to teach them to apply these powers to the drawing from objects. They cannot do this without guidance, because *the knowledge of actual facts is constantly obtruding itself and interfering with the impressions really conveyed to the brain by the eye.* This obtrusion of facts and this substitution of preconceived notions for actual vision have to be combatted until the mind is passive and receptive. When this is accomplished the artistic sense, the art instinct, has full play.

It is astonishing what a firm hold these facts have on the mind, and how ingeniously the pupil makes a compromise between facts and appearances. One pupil teacher, who could draw from copy, substituted for the correct drawing of a cube (Fig. 1), as he really saw it, the following rendering (Fig. 2):—



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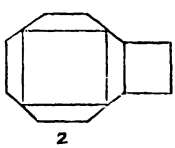

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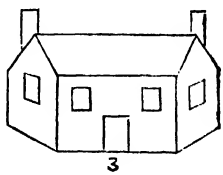

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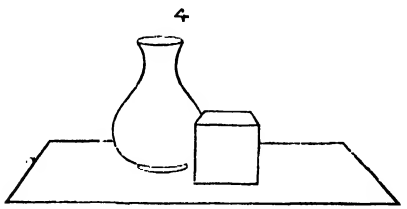
Here the fact of the six sides of which the cube is composed strongly obtruded itself, and found most ingenious expression. One boy who had received no education in drawing gave Fig. 3 as the drawing of his house, and when asked if he could see both ends of his house, at once replied, 'No, but they are both there.'

This, however, is not so bad as the case of a manufacturer who, having had a bird's-eye view of his factory lithographed, could not understand why the front of the fourth side was

not shown in the same drawing. This tendency often asserts itself suddenly in an otherwise good drawing. Fig. 4 is a correct drawing of a group placed before a student who is now an art master. He managed to draw the vase and cube with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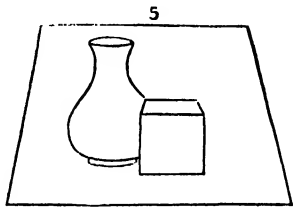
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only slight errors, for the actual facts were not so much at variance with the appearance, but when he came to the board its broad, flat surface asserted itself in his mind too strongly for his vision to have any play, and with the result seen in Fig. 5.

The error of making the foreshortened upper surface of a cube too broad arises solely from the fact that the pupil knows it is the same size as the surface facing him, which is, and also appears, a square.

Students who have been taught perspective notions instead of how to see for themselves, and who have only been accustomed to draw from objects placed below the eye, invariably, in their first efforts at drawing similar objects placed above the eye, make receding horizontal lines to slant upwards instead of downwards, just as they were told to do when the objects were placed below the eye, showing in this case, not wrong vision or vision overpowered by facts, but failure to exercise the power to see, they having substituted and misapplied the 'must be' of perspective, which alone they had learned. It is also remarkable how little the world in general exercises its power to see, using only as much of this faculty as will enable it to distinguish one object from another. To most people a red-tiled roof is not a green field, but this is all, and they would paint the one

a uniform red and the other a uniform green, and even a trained artist has to be constantly on the alert to resist the tendency to substitute preconceived notions and his knowledge of facts for the exercise of his power of seeing. This tendency seems as strong as that of a plant or race to go back to its original type in the absence of constant training.

To look for and to probe the reason for the existence of these preconceived notions, in order to properly combat them, is not only an interesting psychological study, but a most important portion of the work of the teacher of art, which has, however, been almost entirely overlooked. Why do we find a certain class of errors almost universal, and the opposite mistakes never made? In the first drawings of a face from cast or from life, if there is a mistake in the position of the eyes it is that they are placed too close together, never too far apart, until the error has been so often pointed out to a student that he, conscious of this tendency and desirous of avoiding it, sometimes places them too far apart. If there is an error in a beginner's work as to the position of the mouth in relation to the nose and chin, it is always that the mouth is placed too low, about half way between the nose and the chin, instead of about one third from the nose; never too high, except after repeated corrections.

Again, all beginners make the head too small for the face, never too large, following the same instincts we see in a young child's drawing. This tendency may, perhaps, be accounted for by the child attaching greater importance to the features, and unconsciously taking this method of giving it expression. He has studied the face more than the head. Then there is the tendency in the student to unconsciously put something of himself or his ancestors into his drawing of the model These tendencies are most strikingly seen when a student begins drawing from the life, having had little previous practice from the antique, although it can even be detected in the early drawing

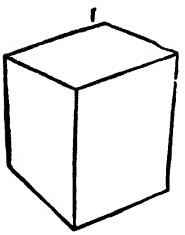
from the latter. Going into a life class when the model is resting, and the students are away from their work, if several have been making their first attempts from the head, it is not difficult to tell which is the work of each student, by the tendency of his study to be like himself. In some cases this is ridiculously like, so that their fellow-students notice it, but in all, this tendency can be easily seen by the master, and in many cases will appear, even when strong efforts to avoid it are made by the student. One well-known artist, of strongly determined will and a correspondingly large and pronounced chin, told me a few weeks ago that he still kept his drawing of the head of the Venus de Milo, in which are seen marks of my repeated reductions of the size of the chin. Instances might also be cited in which drawings are influenced by the thoughts and personages present in the mind of the student.

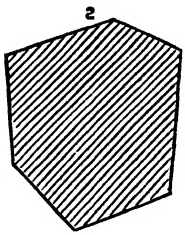
In order to make quite clear the nature and special difficulties of the work which lies before the teacher in model drawing, let us see if it is not possible to obtain certain conditions, in which these difficulties are overcome without any other effort than is required in freehand.

It is as easy to make a correct tracing on a pane of glass of the view beyond, as it would be if this view were already drawn, pasted on the glass, and then traced, or traced on a transparent slate, the only extra condition being that the head must be kept in one position while the tracing is being made. There need be no fear that the pupil will make the foreshortened view of a street twice as long as it appears, because he knows the fact of its great length. His faculty of seeing, and tracing what he sees is brought into such direct exercise under these conditions as to leave no room for the hard facts or preconceived notions to interfere.

It will be found equally easy for the pupil, who has only learned from the flat copy, to make a drawing of a cube in the most difficult position, as in Fig. 1, if it is placed behind a white screen, and its shadow or silhouette be thrown upon the screen

by means of a lamp (Fig. 2), for all that now troubles the pupil is the seeing and judging proportion as in freehand drawing from copy. A somewhat similar effect is produced by placing the objects against a window so that they will tell as a dark mass, and also in the case of a group of distant buildings telling as a dark silhouette against a sunset sky. In all these cases the forms are seen under unusual conditions, the details also being veiled or hidden, and the eye allowed to exercise its faculty of seeing the proportion with less interference. My meaning has often been made clear to students by the following hypothesis. If we can conceive a man who was born blind and had never touched objects, to be given his sight, he would find no greater difficulty in model drawing than in freehand drawing from the flat copy.





Our aims, then, must be to direct powers, already possessed by the pupil, to the mastering of this new difficulty, avoiding the suggestion of anything which shall in the least degree be liable to be substituted for this exercise of his powers. If considered necessary, the practice of having a framed sheet of glass placed upright between the pupil and the model might be introduced in the early stages with very young pupils, care being taken that it is placed at right angles to his view of the model and his head kept stationary. Indian ink, or black with a little ox gall, and a camel hair pencil with a long handle may be used to make a tracing of the models on the glass. Again, be careful not to expose this to the class as a typical view, for it is only the view of this one pupil. This intermediate stage, however, is not absolutely necessary, although interesting if time and opportunity can be found.

CHAPTER XII.

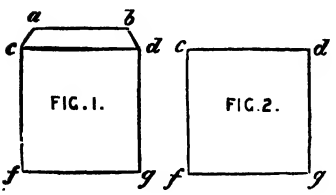
MODEL DRAWING (*continued*).

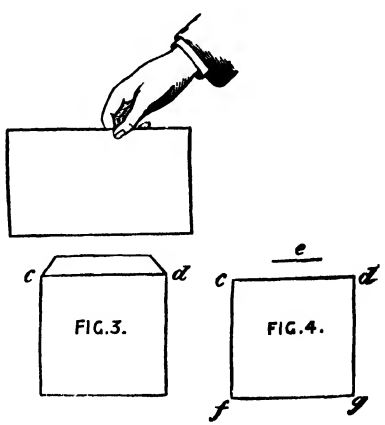
IN teaching model drawing reverse the usual method of placing lines, or surfaces, in varied positions as the first exercises, and begin with solids, so placed that one surface is exactly parallel to the pupil, to serve as a contrast to those portions of the objects in which the appearances are so unlike the reality. Here, again, we begin with the concrete before the more abstract. Let the first model be a cube, one of the larger models of from twelve to sixteen inches edge placed on a low stool at least eight feet from the pupil. This larger model and distance have this advantage that any slight movement of the head of the pupil makes no appreciable difference in the appearance of the model. Very small models should never be used. A square tea chest can be used if a large model of a cube cannot be obtained.

Let each pupil draw a square of about three-inch side. While the rest of the class is occupied in drawing from copies of objects such as those on *Plate XL.* or from freehand examples, take each pupil separately and seat him in front of one of the vertical faces of the cube placed as we have stated. He will at once see that the square he has already drawn represents this front face, and that, so far as this face is concerned, *freehand and model drawing are alike.* One of the most important things to bear in mind in teaching and learning model drawing is to *begin by drawing those parts, if important ones, in*

which there is little or no change from the actual facts, making these the standards by which to judge, by contrast, the more difficult passages.

The pupil will see the front and top of the cube (Fig. 1), and he has already drawn the front (Fig. 2). Let his next effort be to fix the height of line *a b* above his square, but this must not be attempted until the teacher has proved to the pupil how much this height is in proportion to that of the square. This is easily done by the teacher standing behind the model and holding a cardboard vertically on the top of the front of the cube *c d*, then slowly lifting it upwards, as shown in the diagram (Fig. 3), until the pupil calls out that he can see the back line of the cube. While it is held in this position the pupil is required to mark on his paper, by a short horizontal line *e* (Fig. 4), the height of the cardboard above the front of the cube, judging it by contrast with one of the vertical edges, and testing it by means of the pencil held vertically between the object and the eye, as in drawing from the blackboard. As this coincides with the back line of the cube, *he has obtained this foreshortened measurement by the same means as in freehand drawing from the blackboard.* Moving away the cardboard, let the pupil again test the proportion by holding his pencil vertically between the object and the eye to assure himself that he is right. Two other points only remain to be determined, viz., the ends of the





line *e*. Again taking the cardboard, the teacher places it in front of the model, high enough to hide line *e* and coinciding with part of line *c f*; then moves it slowly horizontally across the front until the pupil calls out that he can see the end, to his left, of line *e* (Fig. 5). The teacher should mark this point, *h* (Fig. 6) on the cube, and removing the cardboard, draw the pupil's attention to the fact that it is exactly under the end of line *e*. The pupil should then fix this point *h* on line *c d*, and exactly over it, and level with *e* fix a point *a*, which determines one end of line *a e*. The same process should then be gone through with the other end of line *e* to determine point *b*, and lines *c a* and *b d* be drawn. The two receding lines, *a c* and *b d*, are generally drawn directly after the square representing the front and without their ends being carefully determined; and the teacher too often is content if they obey the canon of perspective that they should converge to each other. These and all other rapidly receding lines are almost impossible to be drawn correctly, except by expert artists, without the aid of such means as are here indicated or others based on the same principle.

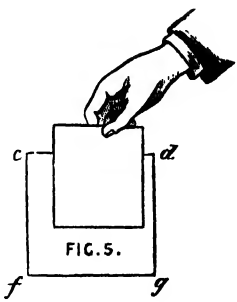


FIG. 5.

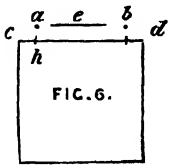
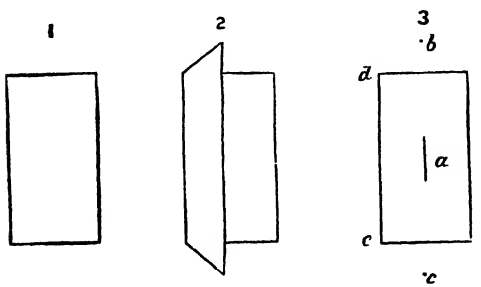


FIG. 6.

It will have taken much longer time to read this than to carry it out by demonstration to the pupil, for his cube will be complete in two or three minutes at most. Thus in one hour's lesson (and a drawing lesson at this age should never exceed an hour without change) this demonstration can be given to from twelve to twenty pupils individually and yet leave time for some supervision of the other work of the class. The teacher must not weary if it requires even ten lessons to explain this to every pupil in the class, for after

one other object has been explained to each pupil individually, he can begin to teach model drawing collectively by taking his pupils in groups, and *the degree of future success will depend on the thoroughness with which the teaching power of the master has been brought to bear on these first steps, for the principle is applicable to all model drawing.* The real difficulty is to override the pupil's knowledge of facts. He knows that the top of the cube is the same size as the front, and he has a constant tendency to accept and draw or express this knowledge rather than to exercise and trust his eyes. If the top of the cube is covered evenly with coloured paper it will be a help. The teacher can draw attention to the narrow look of the coloured top as contrasted with the breadth of the white front of the cube. A cube with each surface painted a different colour would be of great use in the model lessons.

The second model lesson should be from a door, to be drawn first closed and then partially open. Let all the class draw from the blackboard a rectangle about four inches long and wide in proportion to the width of the selected door. Place one student at a time in front of the door, the rest of the class being occupied, as in the previous lesson, drawing from the blackboard or from copies. The pupil should see that the proportion of his rectangle represents that of the door (Fig. 1), then open the door so that it appears as in Fig. 2 (most doors open inwards to a room), and let him now mark at *a* (Fig. 3) the width of the rectangle formed by the open space. Next ask him to note and mark how much the top of this edge of the door now appears above the opening it



exactly filled when shut (*b*); also how much below the bottom of the doorway the lower end of this near edge appears (*c*), and complete the line *b c*. Again, there will be no more difficulty in proceeding thus far than in drawing freehand from the blackboard if the pupil tests the accuracy of the parts above and below the doorway by comparing them with the height of the doorway, just as he has been accustomed to do in drawing freehand from the blackboard. But the drawing is now practically completed, for there only remain to be drawn the straight slanting lines from *b* to *d* and from *c* to *e*, the ends of which are already determined, and the drawing is complete, as seen in Fig. 2.

Again, these are the lines, the position, direction, and size of which it is most difficult to determine, and yet by the means we have indicated this is already *done for the pupil*, even before he has begun to think about the difficulties these lines present. These two lessons must be given individually to each pupil if the ground is to be made sure; and repeated whenever a pupil shows signs that he has either not understood the principle and its universal application, or through want of mental exercise reverts back to preconceived ideas, and draws what he thinks the model ought to look like, instead of that which, by comparison and contrast, he should have determined for himself as the appearance. It should be remembered that we are only teaching the pupil to use his knowledge of proportion and of analysis (already acquired in freehand drawing), and that this alone can give him mastery over the subject.

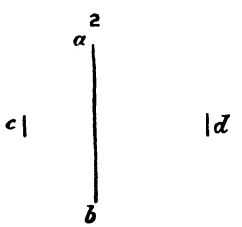
CHAPTER XIII.

MODEL DRAWING (*continued*).

THE next and all following lessons can be given collectively to the class, for which purpose a single desk for each pupil is best and it is desirable that they should be light, so as to be easily moved. They should be so placed as to occupy rather more than a half circle round the model and so that the front of each desk is at right angles to a line drawn from the model to the pupil. If longer desks have to be used, place them as shown in the plan (Fig. 1), but with only two pupils to each desk and sitting as near the middle of the desk as possible. If very long desks only are available, they can also be placed in a double row round the model. The pupils at or near the ends of the desks will, however, be placed at a slight disadvantage. They must sit askew of the desk with the body facing the model, and all the proportional measurements of the model with the pencil must be taken with the face in this direction, which in these cases will not be parallel to the desk.

Fig. 1.

For this next model place a large cube or box on a low stool in the relation to the class as shown in sketch plan (Fig. 1), and so that the top face is below the level of the eye. On this occasion only it will be necessary to leave vacant places at A and B (Fig. 1), so as to enable each pupil to see two of the vertical surfaces of the model. It will be better to use a round stool, or, if square, that the cube is large enough to hide the whole of the top of the stool. Point out that each pupil sees three upright or vertical edges, and let each convince himself that these lines appear vertical by holding his pencil upright in front of each. Inform them that upright or vertical lines always appear vertical as they now see them (point to any vertical lines in the room), and that, on the other hand, they will find that horizontal and slanting lines may, and do often, appear in directions widely different from their real directions; and that they will be able, by practice in the method given in the two previous lessons, to determine for themselves what these apparent directions are, and be able to express them. Let each pupil draw a vertical line *a b* (Fig. 2) about three inches long to represent the middle one of the three vertical lines which he can see. Note that to each of the three groups of students this will be a different line in the model. The teacher should then require each pupil to make two short vertical marks, *c* and *d* (Fig. 2), to show the position of the two other vertical edges of the cube which he can see, judging carefully the horizontal distance between the three lines in the model as compared with the length of *a b*. Each should then test the accuracy of these positions, by holding the pencil horizontally at arm's length and parallel to his two eyes, then, closing one eye, mark on the pencil with the thumb the space occupied by the distance from *c* or *d* to line *a b*, and rapidly turning the pencil vertically, see what proportion these distances bear



to the whole length of line *a b*. Attention should be drawn to the fact that each pupil will be compelled to judge for himself, as no two drawings in each group will, if correct, be alike in these distances.

This can all be explained collectively, but the teacher will now require to test the accuracy of the work of each pupil individually, being careful to *place his eye in the same position as that of the pupil* when he was fixing his distances. Many pupils' drawings have been wrongly corrected by carelessness and inattention to this important condition, and good work undone by it—as the pupil loses confidence either in his own power of seeing, which is being developed, or in his teacher. Indefinite vertical lines longer than *a b* should now be drawn through *c* and *d* (Fig. 3). Determine the lower end of line *c* in relation to point *b* by holding the pencil horizontally and parallel with the eyes to cover point *b* in the model, and moving it gently upwards until it covers the lower end of line *c*. Mark this height at *c* on line *a b*, and, transferring this level to line *c*, its lower end (*f*) is obtained. In the same manner note how much higher than point *a* is the upper end *g* of line *c*, and complete line *g f* (Fig. 4). Join points *a g* and *b f*, and two lines, most difficult to draw as isolated lines, are obtained without any trouble as to their size and direction.

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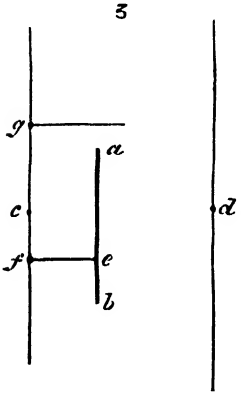

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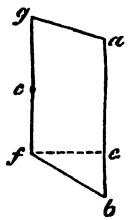

The class may now be asked which they have made the longer line, *a b* or *f g*. Explain that if *f g* is larger than *a b* it cannot be right, and they must look and test again; on the other hand, be careful to point out that its being smaller is *not necessarily a proof that*

it is right. Proceed in the same method with line *d* (Fig. 5) and obtain points *h* and *k* and lines *a h* and *b k*. The drawing is now completed with the exception of the furthest point of the top surface of the cube. This also should be obtained by noting its relation to *a b*, whether it appears exactly over it or, if not, how much it is to the left or right of it, and how much above point *a*. The teacher can help each group of pupils as to the latter by holding a cardboard vertically at point *a* (Fig. 6), and while raising it gradually (keeping the lower edge horizontal) until the pupils can see the back point of the cube, ask them to note how high the lower edge of the cardboard is above point *a* in comparison with the length of *a b*, and this will determine the height of the back point (*m*) above *a* (Fig. 7). The drawing can then be completed by joining *m h* and *m g*. It will be seen that all the receding lines, the most difficult and those in which the greatest mistakes are made, are obtained indirectly. Draw the student's attention to the fact that these lines are really horizontal lines, and that the pupils have proved to themselves that they appear slanting lines, and have also proved the correct inclination and length of each as it appears to them.

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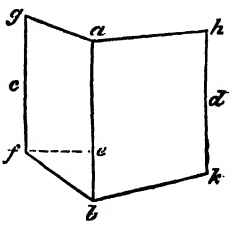

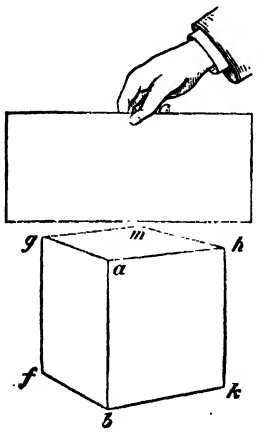

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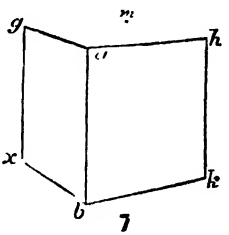

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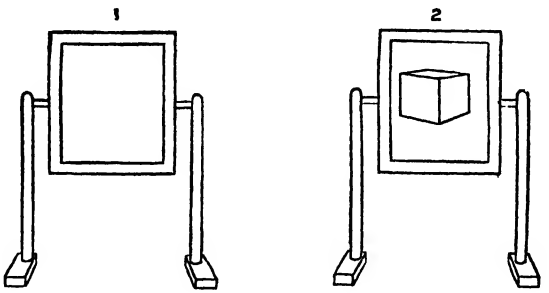
An expedient may be resorted to in this and all future

model drawing exercises to help and to convince the most backward pupils. Like all other expedients, however, it can only be used by one pupil at a time. Obtain a large rectangular frame on a stand, such as that for blackboards (Fig. 1). Place this vertically near the model, so that the one pupil selected can see the whole of the model within and well filling the frame. Let the inside lines of this frame be

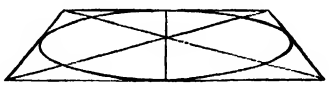


first drawn as large as the pupil's paper will allow. Then let him proceed to draw the cube in the order already detailed, and in relation to the lines of the frame already drawn (Fig. 2). The teacher will find that the pupil will require but little guidance and that it will not be much more difficult than drawing from the copy. This frame may be found of use in many future lessons.

CHAPTER XIV.

MODEL DRAWING (*continued*).

THE circle takes the form of an ellipse of varying proportions, except when it is so placed as to appear as a circle or as a straight line. To obtain this ellipse it has been usual to require the pupil to draw, in correct perspective, an enclosing square with its diameters and diagonals, and within this form to draw the ellipse by freehand. In doing this, note—



(*a*) That the pupil is required to execute the difficult task of drawing a foreshortened square which is not before him.

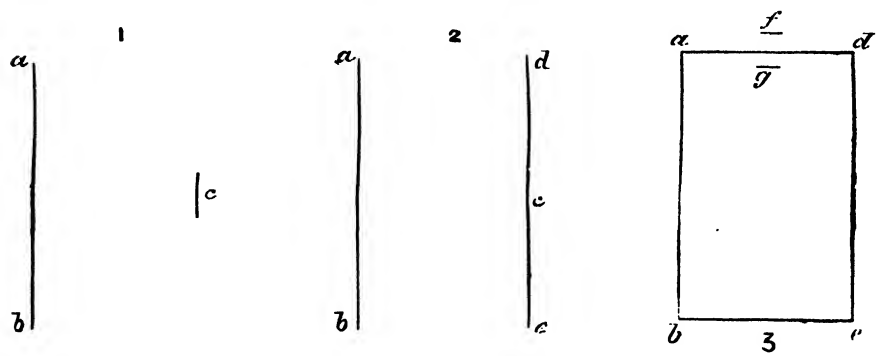
(*b*) That the diameters of the squares are not the diameters of the ellipse required.

(*c*) That much time is lost, and dirt and confusion caused, by placing and removing this scaffolding.

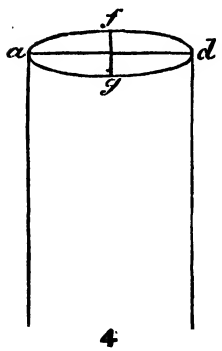
All this is worse than useless.

Place a cylinder upright on a low stool, so that the pupils can see the top. The class can again be placed in a semi-circle, without any vacant spaces left as in the previous lesson. Let each pupil draw a line *a b* (Fig. 1), about four inches long, to represent one of the vertical edges of the cylinder. Then determine the distance that the second vertical edge will appear from it, and mark it by a short vertical line *c* (Fig. 1). Test its accuracy by measuring the proportion by the aid of the pencil held in front of the eye, as already explained. Determine the two ends of this line in *d* and *e*

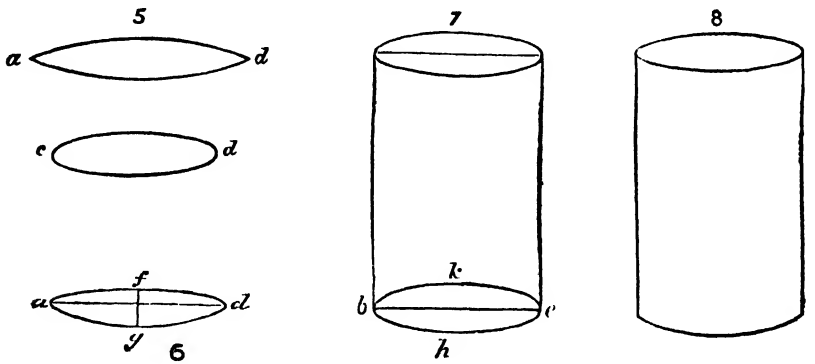
(Fig. 2). Note that in each pupil's drawing *d* and *e* will be level respectively with *a* and *b*. This is one of the few instances in which the appearance of the model to every boy may be safely illustrated on the blackboard, for the position and size of these two lines will be the same to each pupil. Join *a d* and *b c* (Fig. 3). The line *a d* gives the position and size of the



horizontal diameter of the curved form which the pupil sees as the upper portion of the cylinder. He is now required to fix points *f* and *g* (Fig. 3) (the highest and lowest points of the curved top), testing their distance apart compared with the length of line *a d*, and being careful to observe that the one is as much above line *a d* as the other is below it. The curve, which is always an ellipse, may now be drawn through the four points *a f d g* (Fig. 4). The teacher should note the tendency to make *f g* equal, or nearly equal, to *a d*, because the pupil knows that they are in reality equal; and also to break the curve at *a* and *d* by drawing segments of a circle (Fig. 5), instead of one complete curved form *c d*. In pupils who have some knowledge of



perspective there will also be a tendency to make the lower half of *f g* greater than the upper half (Fig. 6), by imagining *a d* to represent the diameter of an enclosing square, which it is not. It only remains to draw *b h e* (Fig. 7), by determining the lowest point *h* in the curve which joins *b e*, and then to draw through this point the visible portion of the second ellipse. The danger of making this lower curve an arc of a



circle is greater than that already pointed out in the top of the cylinder, and the best remedy for this is to fix a point *k* as much above the line *b e* as *h* is below it, and through *b k e h* to draw the complete ellipse (Fig. 7), afterwards rubbing out the portions hidden (Fig. 8).

These four lessons in model drawing have been taken point by point in what may seem wearying and unnecessary detail, but the method has by this means been completely shown, and as it is applicable throughout the course it will be only needful further to point out, (*a*) the best gradation of further exercises, (*b*) any aid from geometrical facts, (*c*) common errors.

CHAPTER XV.

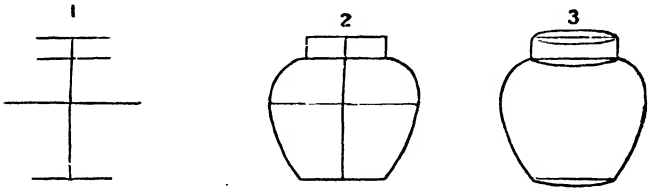
MODEL DRAWING (continued).

DUE gradation of difficulty can perhaps best be secured as follows. Lessons from

1. Single models (including curved forms) in simple positions.
2. Single models in difficult positions.
3. Single models in relation to a rectangular board, on which each is placed.
4. Group of two models on board.
5. Group of several models on board and complicated object forms.

1. *Single models in simple positions.*—These will include a selection from the usual models, cube, cylinder, prisms (triangular, square, and polygonal), cone, pyramids (square and polygonal), vases, and also common objects, such as jugs, basins, boxes, water-cans, &c., placed so that their axes shall be vertical (standing on their bases). These models should be placed a little below the eye in this first section, deferring the exercises for models placed above the eye until Section 3. In the lessons on cubes and prisms be careful, as already explained, that vertical lines are drawn first, with attention to their relative size and position; next, any lines which may appear horizontal, and from these let the pupil deduce those lines which appear slanting. Much individual supervision will be needed in these lessons. In the curved forms, such as jugs, vases, basins, &c., draw first the centre line, or axis, the hori-

zontal lines which determine the greatest width, and the top and bottom, Fig. 1, then the contour of the sides, Fig. 2, as may also be seen in the vase forms on *Plates XXI., XXII., and XXIII.* Note that the contour, which forms so large a portion of the drawing in this position, is but slightly more difficult than freehand drawing from the flat, the pupil not being troubled with the conflict between appearance and fact until he encounters the ellipses caused by the horizontal circular forms of the model, Fig. 3. The tendency to make these forms as arcs



of circles instead of elliptical will require frequently illustrating on the blackboard. The contours may also be shown on the blackboard, as they appear the same to the whole class, but only *after the pupils have made their attempts from the model.* Indeed, more blackboard teaching may be safely attempted with these curved forms in upright positions than can be safely done with any other models. These curvilinear forms, when placed upright, have the following advantages over rectilinear objects:—

(*a*) The contours of their sides, which form so large a portion of the drawing, are but little, if any more difficult to draw than if they were copied from the flat.

(*b*) These contours appear the same to a whole class seated round them.

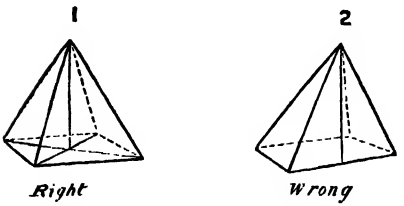
(*c*) They can therefore be safely illustrated on the blackboard, and they thus give more opportunity for collective teaching.

(*d*) Their variety of form gives more interest.

For these reasons they should be commenced early in a

course of model drawing, being a relaxation, both to teacher and pupil, from that constant strain and individual teaching which is absolutely necessary with the rectilinear solids. The vase forms, and common objects, which are selected should not be of complicated contours or more difficult than the pupils can draw from the flat.

In the pyramids the apex will always be over the centre of the base (Fig. 1), and not over the centre of one edge (Fig. 2). Let the pupils write some particulars of each figure they are drawing. Examples, a right hexagonal prism has six rectangular sides, the opposite ones parallel to each other, and two hexagonal sides or bases parallel to each other and at right angles to the rectangular sides. A right pentagonal pyramid has one pentagonal side (or base), and five sides, each an isosceles triangle of the same size, meeting in a point over the centre of the pentagonal side or base.



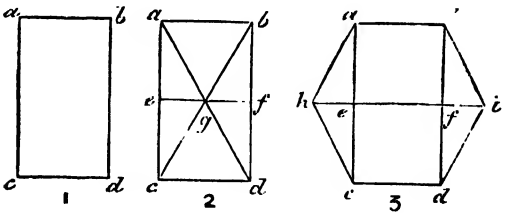
Explain the difference between right prisms and pyramids, and between oblique prisms and pyramids.

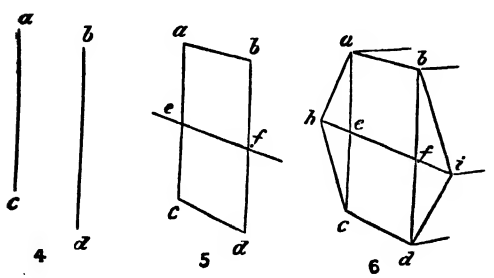
The above exercises will be sufficient for Standards IV. and V.

2. *Single Solids in Difficult Positions.*—These will be the rectangular, polygonal, and curvilinear objects, already used, but now lying on their sides.

The square prism and pyramid will be but little more difficult than when upright, but the polygonal and curved forms will present greater difficulty, and the easiest of these latter forms will be the hexagonal prism. The base, if parallel to the pupil, will be a true hexagon, and the knowledge of its geometric form will be of use. Begin with the rectangle, *a, b, c, d* (Fig 1), formed by the two horizontal edges of the

hexagon and vertical lines joining them. Let this be drawn, and then its proportion can be tested by bisecting each of the two vertical lines in *e* and *f* (Fig. 2), and fixing a point, *g*, in the centre of *e f*. If the proportion is correct, *g a b* will be an equilateral triangle. Produce *e f* on each side equal to *e g* (Fig. 3), and complete the hexagon, *a b i d c h*. If the base is placed at an angle with the pupil this method will still be of use. Draw the lines, *a c* and *b d* (Fig. 4), testing the accuracy of the distance of the lines apart and the relative heights of points *a b c d* by means of the pencil held vertically and horizontally in front of and parallel to the eyes, as already explained. Bisect *a c* and *b d* in *e* and *f* (Fig. 5), join *e f* and produce the line each way indefinitely. This is the direction of the horizontal, diagonal line, on which the points *g* and *h* can readily be obtained, and the hexagonal form completed (Fig. 6).

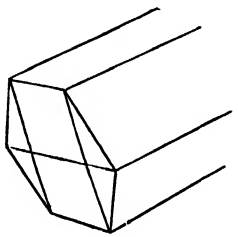




Even when the hexagonal prism forms a portion of a group of objects, and is tilted by one face being placed on another object, this method of proceeding will be of use, as explained by the sketch (Fig. 7). Also, in the case of the hexagonal pyramid, when placed on its side (Fig. 8).

Similar use can be made of lines drawn at right angles to each other across the octagonal or pentagonal faces of prisms

and pyramids, and of one connecting the apex of the pentagon with the centre of the opposite side (Figs. 9 and 10).



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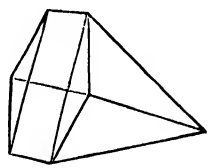

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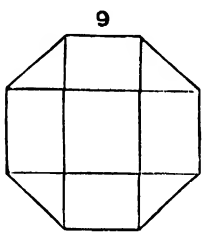
In order to keep the whole class at work it will be well to place a second object for those who have finished early and well, not, however, alongside of the first model, but well away from it,



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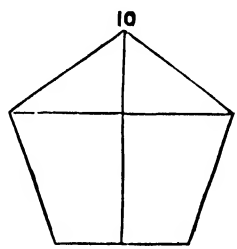

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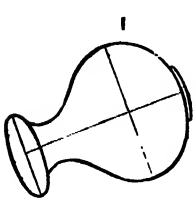
to be drawn as a distinct example, and not in relation to the first.

When vase-like forms are lying down so that the axis is nearly parallel with the pupil, contours of the sides should be drawn as soon as the proportions have been fixed by a few straight lines, as already explained under the head of vases standing upright, the only change being that the axis or centre line is slanting (Fig. 1). It is, of course, most important that the inclination of this line should be carefully studied. After the contour has been drawn, the pupil may turn his drawing until the axis



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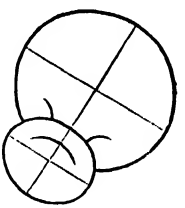
becomes upright, so as to judge if he has drawn the contour of each side alike. The elliptical forms should then be added, as already explained.

When the vase is so placed that the axis becomes very much foreshortened, draw first the direction of the axis, then test the accuracy of your line by holding the pencil in a vertical plane parallel to the eyes, but slanting so as to see equal portions of the vase on each side (Fig. 2). In using the pencil to test the apparent direction of a line which slants away from the pupil, great care must be exercised to see that, although the pencil is held slanting, it must also be in a vertical plane parallel to the eyes, and not held slanting from the pupil in imitation of the actual direction of the line in the model. To check this tendency it will be well to require the pupil to hold the pencil between the first finger in each hand (Fig. 3). Proceed now to draw the circles, or nearly circular ellipses which represent the circular character of the form; lastly, any portion of the contour which may be visible (Fig. 2). The contour is sometimes seen in front of the further half of an ellipse, and gradually losing itself as an outline form (Figs. 2 and 4). This will



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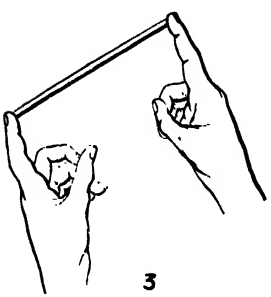

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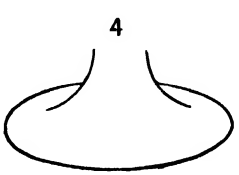

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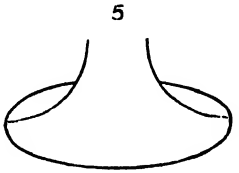

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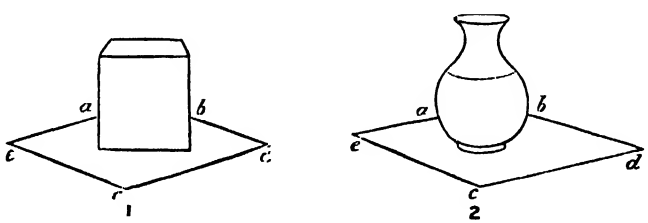
puzzle the pupil unless his attention be specially drawn to it, as he will expect, look for, and draw a continuous line (Fig. 5)

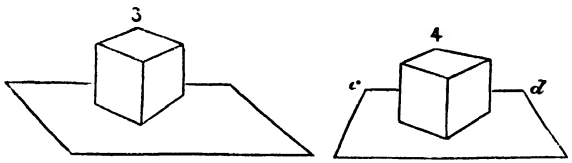
3. *One Single Object and the Board on which it is Placed.*— The purpose in this is to teach how to draw one object in relation to another. It is often the custom to begin teaching model drawing by using a drawing-board or cardboard as the first model, and in succeeding lessons to place on it one or two models, and to require that the surface of the board shall be drawn first (before the solid), and the solid afterwards drawn in relation to it. This is putting the cart before the horse, for *the board in a horizontal position is far more difficult to draw than the simple solids placed upon it.* Hence, if the surface of this board is drawn first, and this drawing used as the basis and guide in drawing the simple solids, all the errors and imperfections in it will be as so many false guides, to the confusion of the student in drawing the solids. Let the solid, whether cube, hexagon, or vase, be first drawn, and then the board drawn *in relation to it,* by determining, first, where the lines of the board appear to go behind the cube or vase, as *a*, *b*, Figs. 1 and 2, then



fixing points *c d* (comparing their distances from the cube or vase with the width of the cube or vase), and, lastly, the front point *e*, noting how much it appears below and to the right or left of any given point of the cube or vase. If the edge of the board is parallel to the pupil (Fig. 4), it will be even less difficult to draw. To obtain further accuracy, judge the inclination of imaginary lines from points *c* and *d*, Figs 1 and 2, to the top of the cube or vase. The habit of judging by means of these imaginary lines, connecting selected points in different solids,

will be of the greatest service as the groups become more complex.

Here, again, another error has to be constantly corrected, and for which the student is not responsible. It has arisen from a false application of perspective, and the theory of the error has to be proved to teachers before they can believe their own eyes and make use of them, independently of their notions of perspective or not. The drawing-board on which a group of



models is placed can never appear as in Fig. 3, viz., with two edges horizontal and the two receding edges slanting in the same direction. Yet for years this has passed as right in examinations and in finished drawings in light and shade. A rectangular form, when it is only a comparatively small part of a group, may appear as in Fig. 3; but not so the board, which occupies the whole width of the picture, and for a reason which must be evident to any one with an accurate knowledge of the simplest principles of perspective.

The objects, so far, have been placed below the eye only, but in this and the following sections they should sometimes be placed above the eye. When placed above the eye the near edges of the board or shelf should always be drawn, to explain why it is that the lower portion of the object is not visible. Let the students first make their efforts before any attention is drawn to the changes in the direction of the lines caused by their position above the eye. The teacher will then know to what extent his pupils have begun *to see for themselves*, and the contrast between their errors and the corrections

by the teacher will impress the right more strongly on the minds of the pupils.

4. *Group of Two Objects and Board.*—The objects should be drawn in relation to each other; afterward the board in relation to the two objects.

5. *Group of Several Objects and Board, and also more Complicated Objects.*—These groups will furnish more difficult exercises on the lines already laid down, viz., judging proportion and direction by the eye, and testing this judgment by aid of the pencil held between the objects and the eye in a plane parallel to the student. The judgment must, however, be first applied to getting the objects constituting the group indicated in exact proportion and relation to each other by as few lines as possible. Do not begin to finish or add the detail of any one object until this is secured.

The work throughout the course can be varied and made interesting by drawings made from windows, chimneypieces, maps on walls, facing and also receding from the pupil; doors, with simple panelling, open and shut; desks, tables, and stools, toilette jug and basin, an open umbrella, a set of steps, a man's tall hat, &c., or even views from the door or windows, care being taken to select those objects which have not much minute detail, or, where this exists, to ask that only the general lines may be drawn.

The objects and groups should always be carefully gradated in difficulty, rather leaning on the side of simplicity as best serving the objects of the study. There is a constant temptation to place complicated examples and objects before students who are not equal to mastering them satisfactorily, thus largely increasing the teacher's work in explanation and correction, and causing the student to become careless of accuracy or to be disheartened, according to his temperament. The massing of forms in correct relation to each other is the main object of this section, and this should not be hindered by too much

detail. Let what is done be right from the first, both in order of doing and in accuracy, that the drawing may be intelligible and interesting in every stage of it.

The teaching of memory drawing has been strongly urged in the chapters on freehand drawing from the flat. The reasons there given are even more applicable to model drawing from memory. The freehand example may always be at hand for reference, but the grouping of models once disturbed can never exactly be restored, and instead of this being the memory of diagrammatic forms it is the memory of the moving world around us. The artistic faculty and power often exist while the memory faculty is but slightly developed, the scope of work being thereby much restricted, while for use in the industrial arts and in the teaching of other subjects by illustration it is absolutely necessary that this power of drawing from memory should be well cultivated.

It may be of some value to inquire what efforts have been made to teach this subject, and why they have so egregiously failed, that this teaching no longer forms a part of the course in our day schools, schools of art, and training colleges for teachers. About the year 1865 examinations in memory drawing were first instituted, and then only in our training colleges, and limited to teachers in schools receiving aid from the Education Department, no others being allowed to be examined. It was soon discovered that the candidates were unable to succeed, even with a low standard of examination. The test was reduced by allowing the candidate to name four common objects, and from these the examiner was required to select one for the candidate to draw. It was soon found that the candidates, instead of studying from the objects, crammed up from four drawings of these objects, and that it was no test either of his power of memory or even of model drawing. After some years it was required that he should draw his selected object in any position named by the examiner. This real, though slight and

limited test, proved to be too much, and for it a group of models was substituted, which the student was required to draw, and then immediately afterwards to draw it from memory on the blackboard. This was perhaps the most satisfactory test, but it has had to be abandoned, and now this subject, so vital, is no longer taught or required. Two causes were enough to ensure this failure.

1. Its limitation to teachers in State-aided elementary schools, excluding all other day-school teachers and teachers in art night-classes, and schools of art.

2. It forms no part of the work of the *pupils* in day schools, art night-classes, and schools of art. No room is found for it in the examinations, no encouragement given or test applied, and, as a consequence, the subject is not taught. I can only appeal to the enthusiasm of the teacher, and also state again that, apart from the power gained, and the interest it excites in the pupil after the first few efforts (the importance of which results cannot be over-estimated), it is the only sure means of testing how much of each lesson has been learned by the pupil, and the measure of the technical power he has acquired. They form the best of home lessons, for the teacher, knowing the model or group of which it is the memory, can safely correct the exercises. If there is no time to execute them as home exercises, memory drawing of the previous lesson should occupy the first few minutes of each lesson.

CHAPTER XVI.

DRAWING FROM PLANTS.

THE more advanced pupils can now safely be allowed to commence drawing plant forms from nature. They have learned to see for themselves, and are not hampered and crippled with a number of perspective rules, which are not in the least degree of use to them when drawing plants from nature. Perhaps the best and most accessible plant is the laurel. Small trees of this can be had in pots for less than 1*s.* each, and one plant will serve for an endless number of studies. Let the first exercise be of two or three leaves on the upper stem standing clear against a light background, and to occupy only one lesson. This is important, because of changes of growth between each lesson. All you have to do is to encourage the pupils to draw what they see by judging *proportion and direction, as in model drawing*, and pointing out the grace and beauty of the lines, especially in some of the foreshortened leaves, in the junctions of the leaves with the stems, and in the lines of the stem itself (*Plate XLI., Figs 1 and 2*). The teacher should, however, be on his guard against a very general tendency in the pupil to relax from the severe attention to proportion and relation which has been insisted upon in freehand and model drawing. The exact judging of spaces and of the directions of lines in each drawing should be tested by the teacher when sitting in the exact position of the pupil, and no merit allowed for careful line work where this is wrong. Later on a larger spray of several stems,

or the whole plant, may be attempted, obtaining all the general lines of growth in the first sitting, and at that and each of the following sittings blocking in only as much as can be finished in one lesson, so as to avoid changes resulting from growth. Much expression can be given to these drawings by flat tints of colour, as already explained in the section on flat washing, and by this means much of the mechanical, conventional, and expressionless outlining will be rendered needless (*Plate XLI., Fig. 2*). Draw the attention of the students to the fact that many of the ornamental forms in the course of freehand were evolved from ideas gathered from these natural forms, the designer having made artistic use of the leaf forms—their general lines, their main divisions, their serrations, or their method of growth from and connexion with the stems (especially seen in the sheath-like forms of the giant hemlock, &c.), the flowers and fruits also. Variations on some of the freehand examples may now be asked for as home exercises in design, these variations showing one or more characteristics of the plant they have been drawing. This should be done with the freehand example before the student, but his introduction of any characteristic of the plant should be from his recollection of it, *from memory, and not direct from the plant or from his drawing of the same.* For instance, if he selected the second and third examples on *Sheet XXX.*, and had previously been drawing a few leaves of the geranium, pelargonium, gooseberry, or thistle, he might modify the first of the two examples in the shapes of the serrations only, and in the second introduce still more of the nature of the leaf and stem, especially if he selected the geranium (*Plate XLI., Figs. 3 and 4*).

This practice leads naturally up to invention of leading-lines and masses, and the true conventionalism of natural forms, skill in which is proof, not only of the designer's knowledge of nature, but of his power to make it subservient to his purpose.

In a similar manner did the old designers work in all good

periods of art, making use of the experience of their predecessors, but building on this foundation their own materials gathered from nature, and bearing the impress not only of the age, but of the man who gathered and assimilated them.

This practice, gradually introducing more and more of the individuality of the natural form, will save the designer from the two great errors of to-day—the merely modifying of types of historic art, generally for the worse; and, as the other extreme, the sticking on of sprays of plants and other natural forms, and calling this design.

This study of drawing from nature has of late years been much discouraged, for until 1889 no examinations were held in nature drawing. We have had examinations for many years in nearly every kind of drawing—drawing in outline from copy, from geometric models, and from cast, drawing in light and shade from models, casts, and photographs, but no examinations in drawing from nature until the end of the course, when drawing from the life is reached. This has had a very baneful effect on the direction of the work of the schools, especially as bearing upon industrial work and design. It may be said, if it is considered so important, the absence of an examination and the stimulus thus offered would be the less needed. But this can scarcely be urged when it is the only subject left out of a series of examinations covering the whole course of the school work excepting this; for in spite of all local influence to the contrary, the study of this subject becomes crushed out by the very comprehensiveness of the scheme of examinations. As a consequence students and designers neglect the study of nature and are content to modify the work of past ages only—often much to its deterioration. This is in too many cases the only education in design they receive, and these works are considered designs, instead of their being merely exercises in adaptation and preparation for the only real design—that of gathering their own materials from nature, assimilating these with their

own thoughts and purposes in the light of the work of past ages, and thus producing original designs. We seem to forget that the great distinction between the periods of growth and decay in the history of art is the presence or absence of this power in each age and in each man of the age, to gather in new material from nature, and by the methods of its assimilation to stamp on the art of his day the individuality of the age and even of the man himself.

In this section we have protested against the introduction in the early stages of model and nature drawing of what, for want of a better term, we have called Freehand Perspective.

(*a*) Because it is more difficult to teach than model drawing.

(*b*) It is always uncertain and inexact in its application to model drawing.

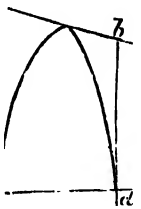
(*c*) It is asking the pupil to apply a science of which he is ignorant.

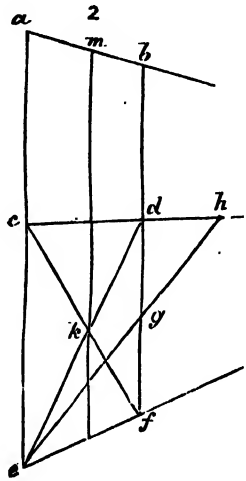
(*d*) And it becomes an unreliable substitute for learning to see.

After model drawing has been mastered, then the science of perspective may be taught, and the student will be able to make good use of it in architectural drawings to scale, &c. But for the model drawing, without mathematical instruments, of even architectural subjects, geometry is much more useful and exact. We will take a Gothic arcade as an illustration. Whether we use geometry or perspective, the first arch and its support must be drawn by the eye alone.

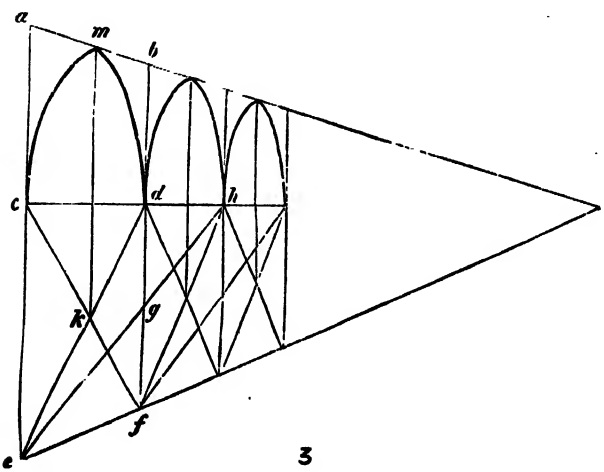
Perspective will only tell us that the lines *a b*, *c d*, *e f* (Fig. 1) if produced will meet in a point, which is called the vanishing-point. Geometry tells us as much if we admit the axiom, necessary also in the perspective, that of two equal lines the further will appear smaller, and, if so, the lines joining the ends of these cannot be parallel but must converge, and if produced must meet in a point. But freehand perspective helps us no further. It cannot tell us how much they converge nor how far

from *d f* to place the next pillar, or how to find the point of the arch *m*, unless we have all the dimensions and distances, and work the problem out to scale by true perspective. Geometry can, on the contrary, help us to any number of arches and





correctly too. Divide line *d f* (Fig. 2) into two equal parts in *g*. Draw the line *e g* and produce it to cut *c d* produced in *h*, which



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gives the position of the next column. This process can be repeated for any number of columns that may be required, while the centre of the arch will be given accurately by drawing diagonals *f c* and *e d* intersecting in *k*; through *k* draw a vertical line which will intersect *a b* in *m*, this being the point of the arch (Fig. 3).

It is possible to teach geometry concurrently with freehand and model drawing to very young pupils, but the model drawing would have to wait until the science of perspective can be so mastered as to be safely applied by the student, if we are to teach it by perspective rules, even if there were not the other reasons that when applied by freehand and not by instruments it is an unreliable guide, and also that the student is apt to be content with approximate results instead of those obtained by the well-trained eye.

It may be asked, of what use, then, is perspective, and why teach it? The answer is, study it thoroughly as a science, and then having already mastered the art of model drawing its practical use will soon appear. Its study as a science cannot, however, be commenced until the solid geometry of plan elevation and section is mastered; for, while much bad teaching of model drawing has resulted from trying to teach it by perspective rules to those who have no knowledge of perspective as a science, much time and labour has been wasted in trying to teach the few principles of perspective to those who are unacquainted with solid geometry.

CHAPTER XVII.

PRACTICAL PLANE AND SOLID GEOMETRY.

PRACTICAL Plane Geometry only, was formerly taught in schools of art and elementary schools, and this in isolated problems, without principles. As a scientific study, it excited the ridicule of mathematicians; but crude and limited as it was, it was of practical value—it was a good memory exercise, gave practice in the use of mathematical instruments, and was probably quite as much as could have been given at that time to the majority of students for want of general education. More logical and theoretic geometry would probably have defeated its own object. It is now taught more systematically, without being less practical, and for this change we are largely indebted to improved textbooks and to the fact of its being taught in our day schools along with the study of Euclid.

That which is required by the syllabus in elementary schools is so limited, that few hints are needed beyond those already given in the earlier standards (*see* pp. 10 to 29 and 50 to 52), but in addition to this very limited syllabus, time should be found, if possible, for teaching the division of circles into degrees and the use of this in measuring angles by the protractor and the scale of chords, the property common to all triangles of having a total of 180° and some of the uses of this explained, as in polygons, &c., and practice given in bisecting lines with dividers by trial. Exercises in cutting out geometric forms in

thin cardboard will not only give additional interest to the work, but will be helpful in many ways.

The skilful use of instruments should have careful attention: the T square on left edge of board, the two set squares in any position, and compasses to be held by the top, between thumb and finger, not grasping the legs and thus changing the measurement. For plane geometry in schools of art, art night-classes and public schools (Section 1 of plane and solid geometry) the syllabus is well arranged and perhaps even too comprehensive. In addition to the hints already given in the early standards, the following will be useful:—

Do not weary and dishearten the student at the beginning by setting him to learn a long list of definitions, but only such as are necessary for working the problems of the first few lessons, adding to this list further definitions as they are needed for the succeeding problems. Try to work one or two problems in the first lesson.

Whenever it is possible, show the principle or axiom on which the problem is based and also its connexion with previous or succeeding problems, for by this means only can the study be lifted above a mere exercise in memory and in the practice of instruments. Let all the problems be worked by the pupils on a large scale, especially using a large radius when obtaining points by intersecting arcs.

Give illustrations of the practical use of the problems in science, architecture, and design, as each section of the syllabus is completed. Require as many of the problems as possible to be carefully and intelligently inked in. It is not only necessary that the student should be taught this art of inking-in before he can make much practical use of the science, but it helps to fasten the problem on the mind, exposes errors and imperfect knowledge, and facilitates the examination of the exercises by the teacher. Do not work every problem on the blackboard, but select typical problems from each section for

demonstration, and require the others to be worked from the textbook, either in class hours or as home exercises, thus saving the time of the teacher and fostering the practice of independent study by the student.

After the simplest problems have been worked, such as those in Standard V. (perpendiculars, parallels, squares, &c.), the lessons in plane geometry should be given alternately with those in solid geometry, instead of the latter being deferred until the course of plane geometry is completed.

Definitions of problems, combining and varying those of the course, should be written from dictation and worked out as exercises without reference to the textbooks. These will serve as memory exercises and also test the amount of reasoning the student has brought to bear on the subject.

SOLID GEOMETRY.

Of all scientific subjects this is the most widely useful in the arts. To the builder and architect, the engineer and machinist, it is an absolute necessity, the designer and art worker cannot proceed far with safety without this knowledge, except in flat decorations, and even to the painter it is of value.

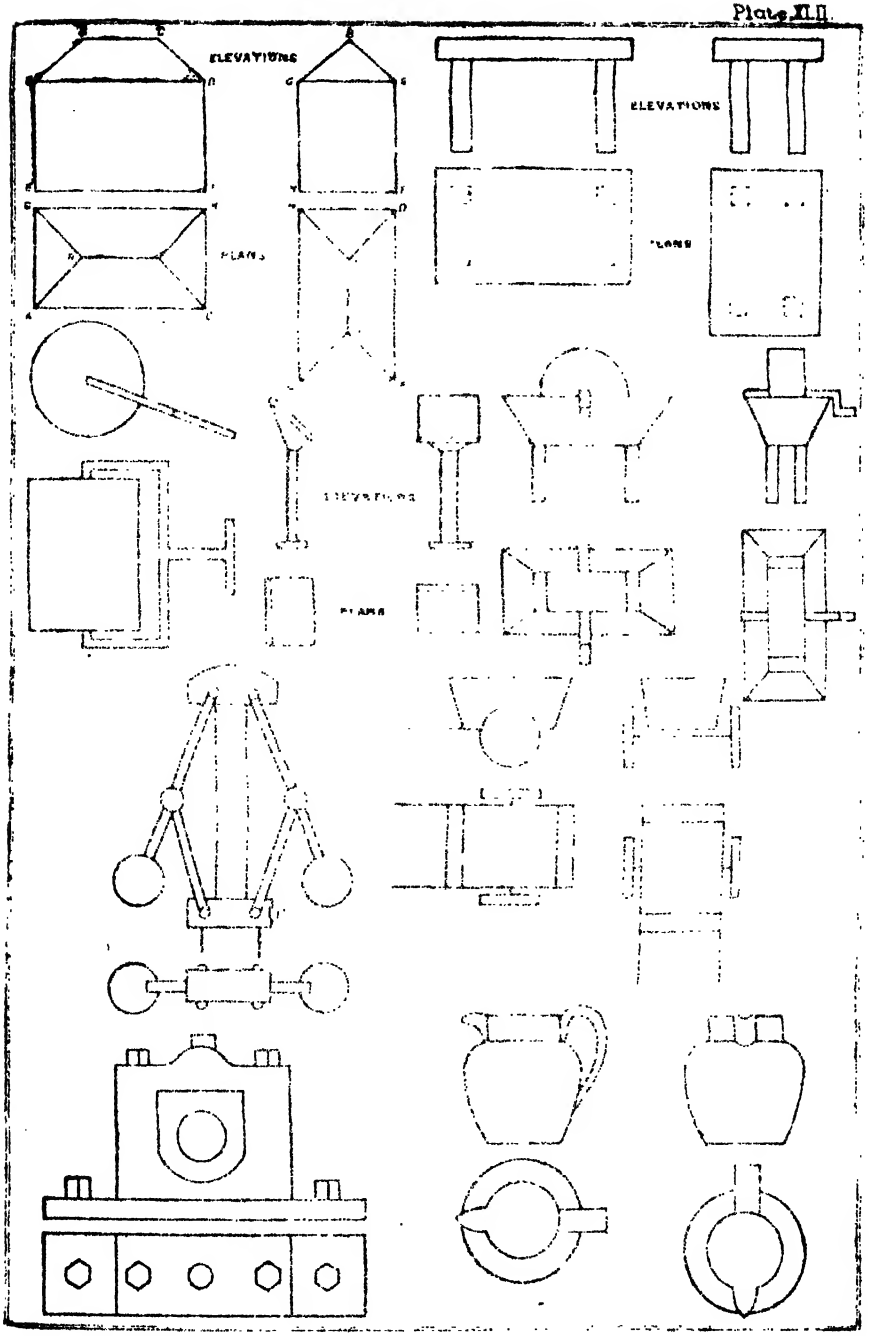
As an educator. it is perhaps equal to the best of general school studies, and should always be taken along with the study of Euclid. There is also another very practical use for this scientific drawing. In the study of several sciences pupils are required to make drawings of the apparatus, processes, &c., and to show power of doing these in examinations. Now it is too much to expect that each student of science should be able to do this by means of model drawing. This would require much teaching and long practice, but sufficient of this scientific or diagrammatic drawing of solids could be taught to a class in chemistry or mechanics with but little cost of time and with gain of scientific accuracy.

When well taught it is easy to learn and most interesting to teacher and pupil.

It is most extensively taught to children in Continental schools, and yet it has been stated, again and again, by teachers of machine drawing and building construction drawing that it is impossible to teach it to the average English artisan. This I have always regarded as a gross libel. Machine drawing and building construction drawing have too often been taught without any knowledge of the principles which underlie their practice. Where this is the case it is to a large extent a mere cram, and not an education in these subjects. The nature of the examinations in Subjects II. and III. of the Science Department in past years has encouraged the neglect of Subject I., as may be proved by an analysis of the statistics in the annual bluebooks. While there has been little difficulty in getting the subject taught to art students, it has been sadly neglected in many science classes where it is a vital necessity.

We venture to think that there is an educational error in the manner of commencing this study. It is not the best way to begin with point, line, and plane, as shown in so many textbooks. Again, let the concrete lead up to the more abstract. Even before actual projection is begun, the interest must be awakened by showing the object of the science and its usefulness. Commence the *course by sketching and explaining the plans and elevation of common objects*, and let these diagrams be sketched by the student, as shown on *Plate XLII.*

This will familiarise the student with the appearances of plans and elevations, and the usefulness of the subject can be impressed by explaining that this is the only kind of drawing in which the actual dimensions of solids—length, breadth, and thickness—can be so expressed, that measurements can be taken from them, that they are in fact 'working' drawings. In my own practice in teaching geometry, perspective, machine and architectural drawing, sciography, &c., I have continued this sketching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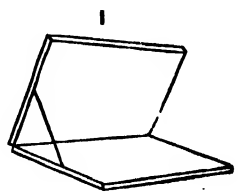
of the diagrams of plan, elevation, and section on the blackboard throughout the course, rarely using the T square, set square, or compasses, except so far as to explain their use. This helps the teacher to keep a firmer grasp of his subject, and gives him more time for verbal explanation and for individual instruction. A constant test of how far the students realise the relation of the plans and elevations to each other—that they are *four* drawings of *one* object, and not of four objects—will be to letter the corners of the elevation *a*, *b*, *c*, *d*, &c. (*Plate XLII., Fig. 1*), and require the student to letter the corresponding points in the other views of the same object. This will show who have unintelligently copied, who have only half realised the nature of the drawings, and who have grasped the full meaning. Many amusing errors will be made at first.

Commence with projection of solids, instead of points, lines, and planes. Explain the need of the vertical and horizontal planes of projection, limiting the explanation at present to the angle above the horizontal, and in front of the vertical, plane. Say nothing about the dihedral angle. It will come soon enough. Make constant use of a model of these planes, two boards hinged together and with hooks to keep them at any angle to each other that may be required (Fig. 1), but so that they can also be laid in one plane to correspond with the paper on which the student is working.



Also, as far as possible, use models of the objects of which you are obtaining the projections. These may be the usual solid models and portable common objects. Without the use of the hinged board and some models the beginning of solid geometry will always be difficult and the result very uncertain.

Explain simply the use of projectors. The best illustration is the fact that the shadow cast by the sun, if it were in the

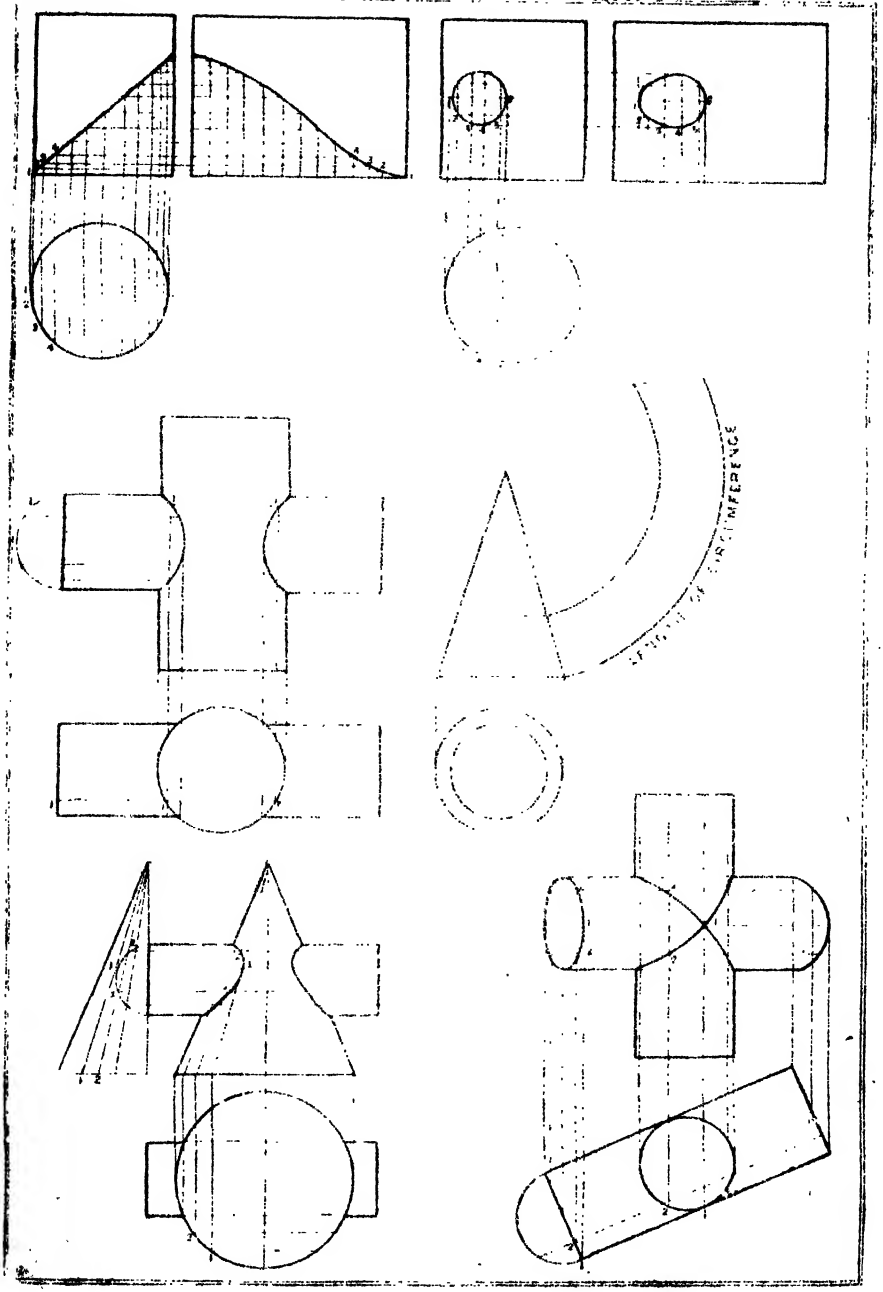
zenith, would give the boundaries of the plan of any object, and, if on the horizon, the boundaries of the elevation. The effect of this can be illustrated by gaslight shadows on a vertical and horizontal plane, although it is not absolutely correct, as the projectors or rays of light slightly diverge.

When the first drawing is made, whether it be plan or elevation, let each corner be lettered *a, b, c, d,* &c., *and as each point is obtained in the opposite plane see that it is lettered before attempting a second point;* also, that when two points are obtained which are the ends of a straight line in the figure, *let this line be drawn before a third point is attempted.* Too often the whole of the projectors are drawn at once, for this is easy mechanical work, but it generally results in confusion, dirt, and needless labour.

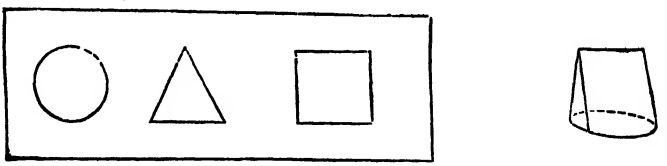
When sections are required, let these be figured 1, 2, 3, 4, &c., instead of using letters, so as to avoid confusion. Sections parallel to one of the planes of projection should be well mastered before any sections at angles with these planes are attempted.

Errors, except those arising from carelessness, will generally indicate that the statement of the problem is not so understood as to call up to the mind of the pupil the object and its position relative to the two planes of projection.

It is of no use to go on with more complicated examples if there is any uncertainty on these two points. The examples may be varied, but should remain simple until this is mastered. Occasionally the projections may be first drawn on the blackboard, and the student required to name and to sketch the solid they represent, or even to cut it out in soft wood. Also, from the first, let each student take his turn in measuring and stating to the class the dimensions of the object, and let the drawings be worked to scale. After a few simple exercises of this kind I have found the following puzzle interesting:—Sketch the following diagram (Fig. 2) on the


STRETCH OUT CIRCUMFERENCE

blackboard, and explain that it represents a piece of brass or hard wood with three holes. It is required to cut a solid of such a shape that it shall go through the square and fill it, through the triangle and fill it, and through the circle and fill it. Apparently, this will not only be fitting a square peg to a round hole, but also to a triangular one. The shape of the solid is shown in Fig. 3. It may afterwards be explained that the three holes are only plan, elevation, and section of a solid.



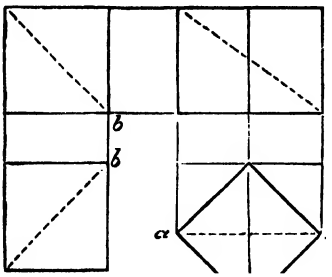
2

Another cause of error is the conflict between the actual appearance of solids to the eye, and the diagrammatic expression by means of plan, elevation, and section; but if these difficulties are noted by the teacher as they arise, they can easily be overcome. Commence the section on point, line, and plane by making use of the cone and its simplest sections (the circle and triangle). Find points upon it in plan and elevation, and by revolving its triangular section explain the method of finding the actual length of any line, and the angles it makes with both planes of projection. Make constant use of the models of the two planes and also of cardboard, cut to shape required, to represent sections of new planes.

The simpler cases of development of surfaces, interpenetration of solids and projections of shadows, will not only be interesting but of great practical use.

On *Plates XLIII. and XLIV.* are examples in which it will be seen that the methods of working are nothing more than solid geometry. The angle of the light used in the examples of projection of shadows (*Plate XLIV.*) is that universally

employed in machine and architectural drawings. Its projections are 45° in both planes, the actual angle being that of the longest line of a cube (*a b* in the diagram).

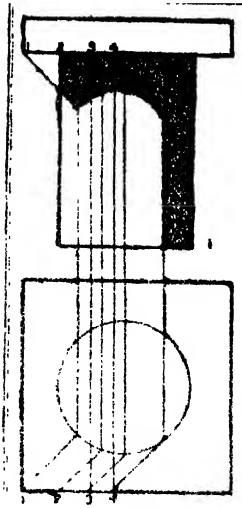


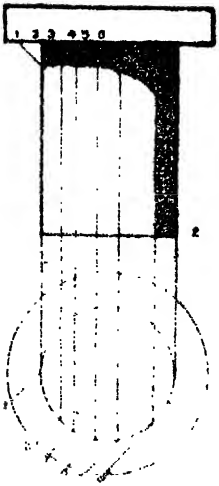
There is also given on *Plate XLIV.*, *Fig. 4*, an application of the principles of the projection of shadows to a vase, and in *Fig. 5* on the same plate, an application of the principles of projection to determine the positions of ornamental forms on surfaces, the horizontal sections of which are circles. *Fig. 6* is a completed drawing worked on these methods.

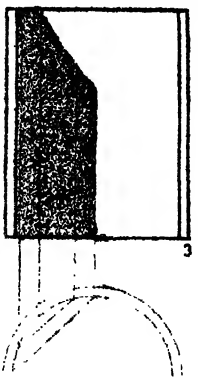
This knowledge is absolutely essential to designers for all curved objects, yet but few possess it. They work by rule of thumb, and cannot tell the effect of their ornamentation, while most absurd errors are made in the junctions of mouldings, handles, spouts, &c., destroying their practicability. It is also useful to the painter, whether of landscapes, interiors, or figures. A short course showing these practical applications of geometry, should form part of the work of every art student before he enters on the study of light and shade, painting, or designing, except for flat surfaces.

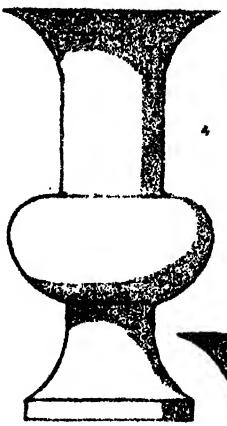
How much of geometry is required for each school standard is clearly stated in the syllabus.

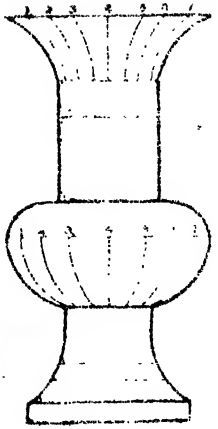
Drawing to scale has rightly the first place. It is required in Standard IV., and its practice should be continued in many of the geometric problems of the succeeding standards. Use for this exercise all suitable objects in the school, as maps, doors, fireplaces, windows, &c., and, when possible, let these dimensions be taken by one or two of the pupils. This will add interest, and impress on the class the real nature and practical use of the work.

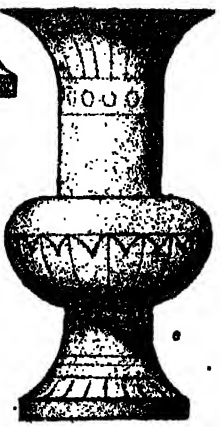












In Standard V., explain degrees and the construction and use of the protractor scale and the scale of chords, in addition to what is mentioned in the syllabus.

In Standard VI., continue to give a few problems in plane geometry, although only solid is required for the examination, or the work in Standard VII. will be too heavy. These may be limited to those based on the different kinds of triangles, the degrees of their angles, and to decorative combinations of simple geometric forms.

In Standard VII., try in every possible way to show the practical use of solid geometry, making scale drawings of all suitable solid objects within reach, in the same manner as indicated in Standard IV. for plane surfaces. For students in schools of art, &c., the syllabus of Section I. of Science, Subject I., given in the directory of the Department of Science and Art, includes all that is necessary or desirable for the art student.

CHAPTER XVIII.

LIGHT AND SHADE.

THE power of the student up to this point in the course is limited to seeing and representing such facts of objects as can be expressed by outlines. Yet with this limited power it is possible to suggest the actual solidity of objects, to express the graceful beauty of foliage and architecture, and even the life and motion of animals and man. But for the full realisation of animate, or inanimate, nature, it is necessary to express all those qualities which together constitute their appearance. These are form, and colour or lighting, the power to express which constitutes the whole 'technique' of the draughtsman.

We have spoken of colour, or *lighting*, not of *light and shade*. This latter never exists in nature apart from colour. A pure white marble vase, or a plaster cast, placed in a room or in the open air, is full of colour, for not only does each portion receive varying degrees of light (direct or reflected), thus producing light and shade, but simultaneously with this lighting, everything—from the distant sky to the smallest objects around—sends some of its colour to the white object and makes it a colour study. It is, however, possible to represent the varying degrees of illumination without necessarily representing the varying colours caused by this illumination. We can represent *tone* without hue.

The study of tone, or light and shade, is perhaps the most comprehensive and important work on which the student can

enter, and yet it has received least attention from the educationalist. Too often it can hardly be said to be systematically taught, students being allowed to pick it up by unregulated practice. They are set to grapple from the first with all the difficulties of full realisation of the infinite variations of tone—thus involving a low standard of right which is both disheartening and demoralising.

One great danger is that care for mere manipulation takes the place of the study of tone. In work done from shaded copies little more than this mere manipulation can be taught. Even the elaborately finished drawings, from geometric models and from casts, which cost so much time and labour—one study often occupying a whole term—are too often the substitutes for, and not the outcome of a training in the principles of light and shade; being evidence more of patience and manipulation, than of knowledge and the power to see tone correctly. The length of time occupied by these finished studies is mainly caused by the want of previous training, and while they are being executed there is little opportunity for the exercise of the student's power to draw, and, as a consequence, he loses much of this power. This also applies to academic drawings from the antique and from the life. Mr. Poynter saw this evil, and when Director for Art he proposed as a remedy the use of the stump and soft chalk instead of the point. The disease was, however, of a too severe character to yield to such a minor remedy, and the result of the first year's work in the new method was such as to appal Mr. Poynter himself. It resulted only in the substitution of blackness and smear for niggle, crosshatch, and stipple, but the true artistic expression was no nearer being realised.

The insistence on the white paper being left in every case to represent the tone of the whole background in these finished studies, strikes a false note, which runs through all the after work of the student, for that which appears to him as light against dark has often to be shown as dark against white.

This regulation was made to repress the needlessly elaborate and highly-stippled background. It, however, destroys the truth of tone, instead of requiring that the background shall be expressed simply and directly, being the work of a few minutes only.

Even in well-executed, artistic drawings of ornament and the figure, the tendency, especially in stump work, is rather towards a painting in chalk instead of a simple suggestion of the modelling and action. This latter is all that is necessary as a step to painting, modelling, or design, and is all that we see aimed at in the studies of artists. The complete realisation had better be learned in tempera, in oil, or in clay, and not in chalk studies. It is not only the loss of time which is to be deplored (many studies of form, tone, and action can be done in the time occupied by one of these elaborate works), but the diversion of the student's mind from the main purpose of this stage of work.

This subject, under the new code, is introduced into elementary schools, and it is hoped these pages may be of especial use to those beginning to teach it.

The pupils who have gone through the course so far will bring to this subject:—

(*a*) A habit of analysing lines and spaces.

(*b*) A power to judge the proportions and relations of lines and spaces, whether seen on flat surfaces, or in objects.

(*c*) An executive power of expressing these by the pencil.

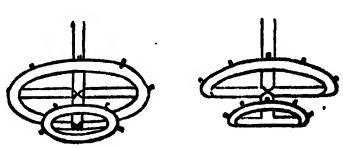
(*d*) A power of expressing flat tints by lines drawn from right to left.

It is desirable to divide the work into two sections:—(*a*) The drawing and expressing, by a flat tint, the shapes of those portions which do not receive any direct light (shadows), and the positions and shapes of the most illuminated portions (highest lights). (*b*) Training to see and express *the degree* of contrast between the shadow and highest lights, and also of the infinite gradations between and within these.

For the first section the powers already possessed by the student will be sufficient, but for the second a new power will require careful development, viz., to see contrast and gradation of tone, although this will have received some stimulus in the first section.

Materials.—An F pencil for drawing the outline (as power is acquired a B, or B B pencil, or charcoal, may be substituted); a B B, or B B B pencil, carbon pencil, or conté crayon (for shading), a piece of stale bread, a sheet of tinted paper—light grey or brown, or common brown wrapping paper of the unpolished kind—a white crayon, or the common blackboard chalk. Sixpence will buy all that is needed.

The requirement as to light is that the model, or cast, shall be illumined by one window only, unbroken by heavy mullions. Except on grey days, this must be a window with a northern aspect, or a north-eastern will do for all times except early morning in summer, or a north-western for all times except late afternoon. The top of this light should be as high as possible, and if the lower edge is less than six feet from the ground, this portion should be covered with a dark opaque stuff; or a blind of the same material placed on a spring roller at the bottom of the window, instead of at the top, will enable the angle and intensity of the light to be varied. *Cross lights, or lights which are not concentrated, present immense and almost insuperable difficulties in the teaching of these first principles.* If the room contains more than one window, while it is absolutely necessary that the light from all but one be screened from the model itself, the others may be of use in lighting the student at work.



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The above conditions apply equally to artificial light. To secure these a gas light of two rings, or half rings, with or without a tin shade, painted white,

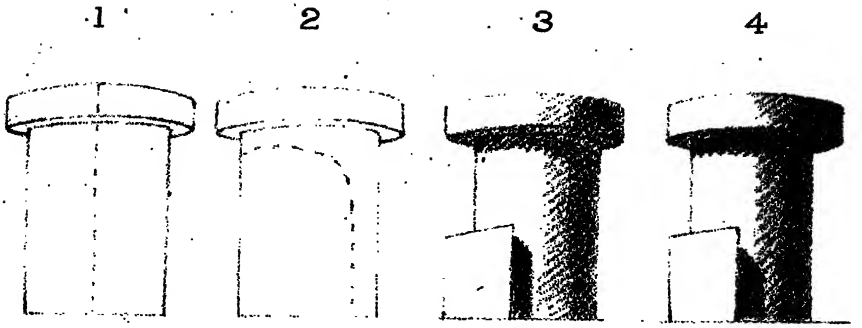
will be required, or one of the many large patent single gas lights. For private study, or for classes of two or three pupils, an ordinary lamp, or common gas burner will be sufficient; other lights may be burning in the room if the light from them is completely shaded from the model or cast.

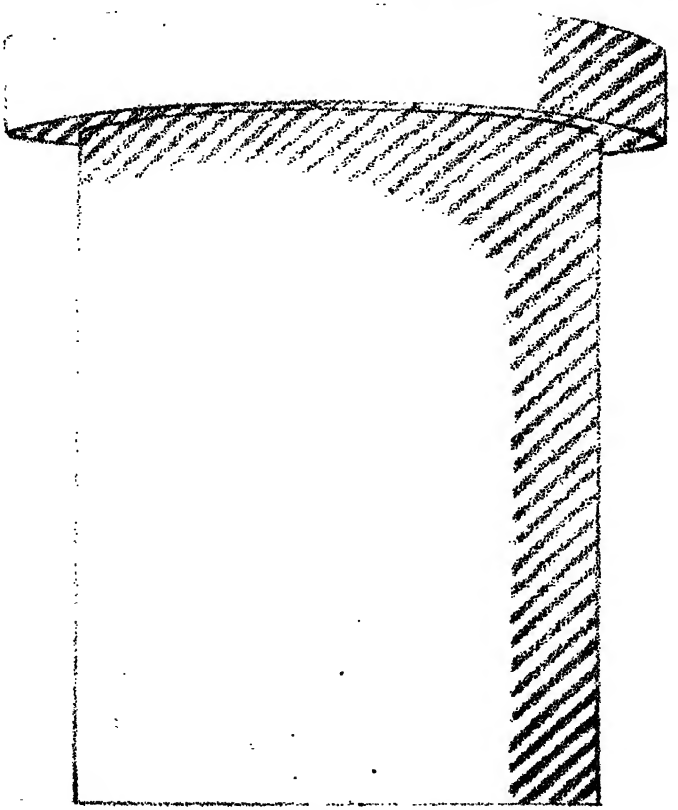
Section I.—Shapes and positions of actual shadows and highest lights only (the question of tone and gradation being deferred to the second section).

Place the large cylinder upright, about four feet from the ground, and upon it, centre to centre, the short cylinder, or disc, having a diameter larger than the first cylinder (*Plate XLV., Fig. 1*). If the short cylinder is not available, a circular disc of wood or cardboard, or even a large plate will answer the purpose. Place these so that the light will be from the left of students facing them, and let the students be so placed that they can see a larger proportion of the light than of the shadow on the models.

Each student should make his drawing on the grey paper about eight inches high. Attention should now be drawn to the fact that the surfaces of the cylinders can be divided broadly into two divisions, viz., the portion on which the light from the window falls and the portion which receives no direct light from the window. Let each student draw a very faint line between the portion receiving more or less direct light and the portion receiving no direct light (shadow). *Plate XLV., Fig. 2.* Note that the shape of this shadow portion will vary in each of the student's drawings according to his position to the left or to the right.

This line of division will be more easily seen in the upper part, where the shadow is in contrast to the highest light. It will require more care to determine the exact edge of the portion, where the light becomes less intense as the surface gradually turns from the light. The position of this can however, be easily demonstrated by the teacher placing upright

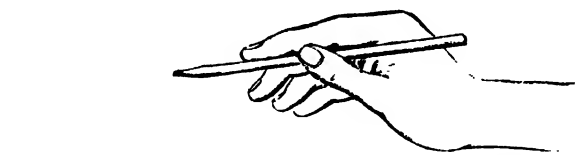


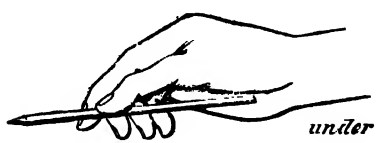


Shadow and high light.

against the cylinder a piece of stiff cardboard, as in *Plate XLV., Fig. 3*, the edge of which will cast a shadow on the cylinder. By moving this cardboard gradually until in the position shown in *Plate XLV., Fig. 4*, a dim streak of light will be left, the right edge of which will be the exact position of the line of shadow down the cylinder.

The shadow portion should now be covered with lines from right to left, *Plate XLV., Fig 5*, done with the B B pencil or crayon, practice in which has already been acquired in the free-hand drawing. The lines should now, however, be broader and of a more open texture than those already used in flat tinting, using a broad, slanting point to the pencil, obtained by rubbing it, when in a slanting position, on a piece of paper. The pencil may be held in the usual position, but it will be well to get into the habit of holding it under as well as over the thumb, thus:





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The spaces between the lines should be equal to the thickness of the lines. The texture and width of lines and spaces suitable for drawing from models of the size usually required is given in *Fig. 5*, and this can easily be illustrated on the blackboard. The scale of the drawings should not be smaller than in *Fig. 5*, but may well be larger, with a corresponding enlargement of the texture, or line and space. In the other diagrams on this and following plates the textures are reduced to suit

the small scale of the illustrations, but the exercises should be done on a much larger scale.

When the position of the highest light has been determined by the students and marked with white chalk, as shown in *Plate XLV., Fig. 5*, the drawing is complete.

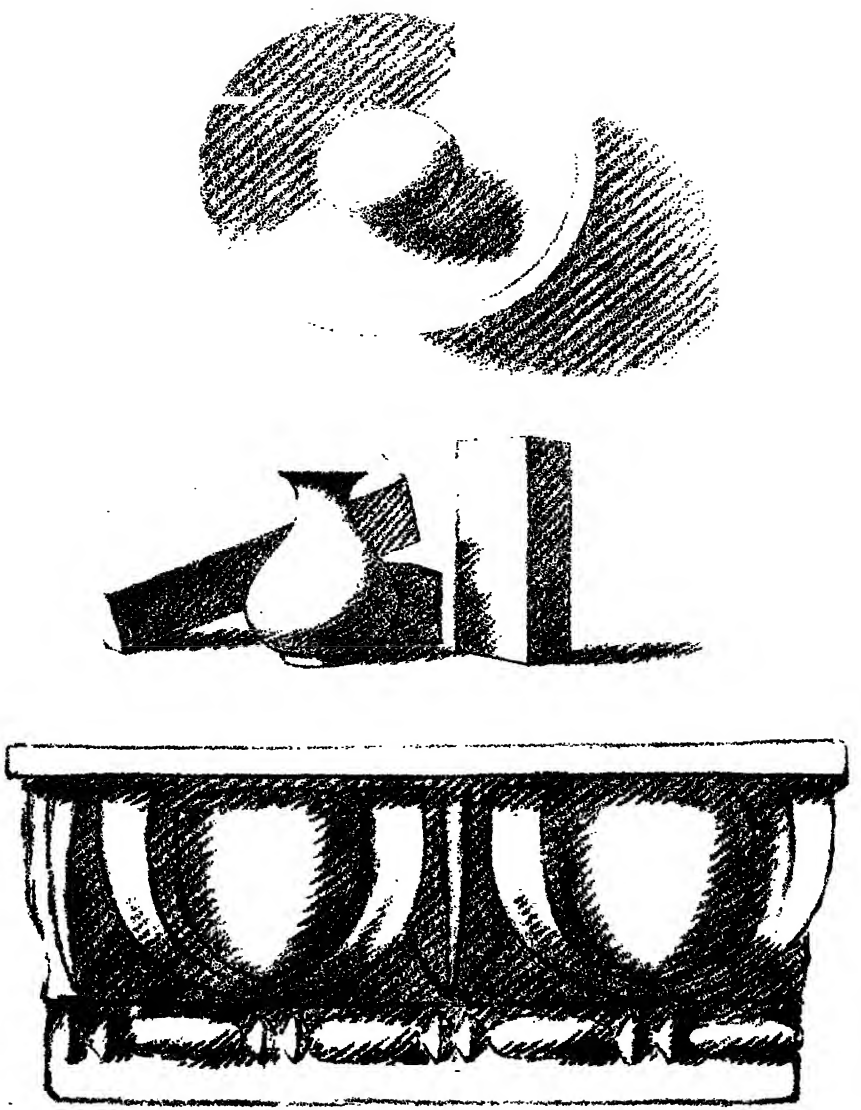
The student should not be troubled at this stage with any question as to relation of tone or of gradation, but reserve this for the second section; an even tint of the right shape expressing that portion which does not receive direct light being all that is required.

On *Plates XLVI., XLVII., Fig. 1*, and *LI., Fig. 1*, are small drawings of casts and models, suitable for practice in this stage of shadow and high light only. The drawings of the pupils should be done from models and casts such as these, carefully selected so as to avoid too much detail.

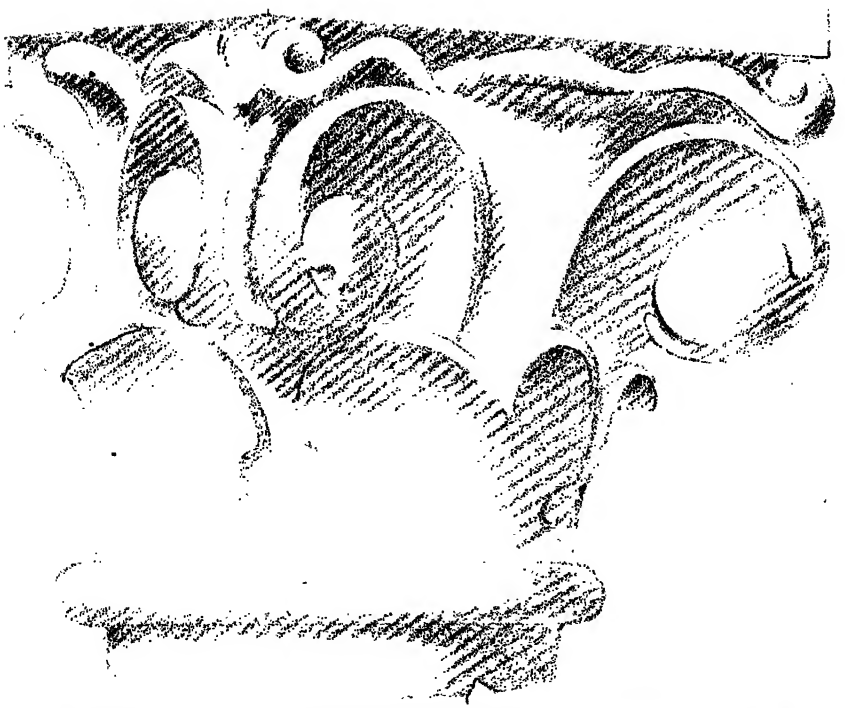
Before proceeding to the second and final section of light and shade, it may be well to state why the slanting parallel lines from right to left are recommended for shading instead of lines following the various surfaces, the usual cross-hatching (seen best in the well-known Julian's heads), the high stipple of most academy and South Kensington figure drawings, or the stump now so largely introduced in our schools of art.

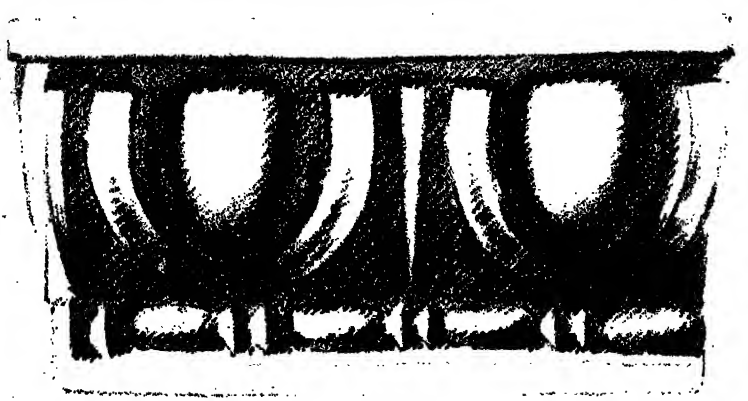
Long experience has proved that the method here advocated is the easiest to teach and to learn, and the one which, from its very simplicity, best secures the general flatness of shadow, while last, but not least, the question of manipulation interferes less with the study of tone and form.

When this simplest method of work is acquired, then the student or artist may, without danger and with exact knowledge of its purpose, use such other lines in addition as he has sympathy with, and which will by their direction help to express the form, thus making a species of shorthand which his skill warrants, or he may make painter-like studies with the

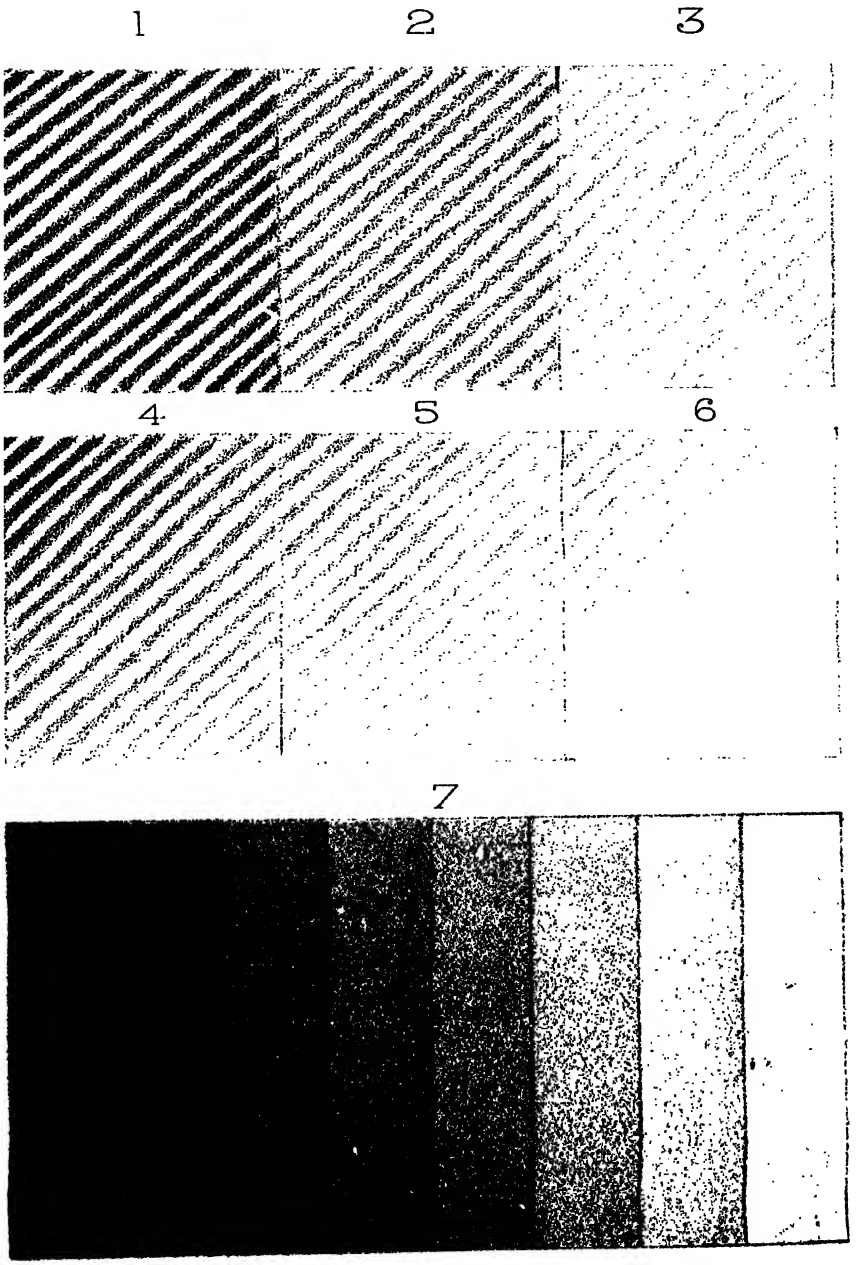


Shadow and high light.





PLATE_XLVII



stump. This latter is, however, the worst and most unmanageable material to commence with, and is more difficult to teach than the use of the brush in painting. For advanced students charcoal is better than the stump, and the drawing when finished can easily be secured by the spray fixative.

Section II.—As a first lesson in the second section, divide the paper (light grey or white) into say six rectangles or squares, leaving a space between the upper and lower row (*Plate XLVIII*).

Fill the first square with lines as shown (*Fig. 1*), using the broad slanting edge, the second with the same number of lines, but touching the paper a little more lightly (*Fig. 2*), the lines and spaces, however, to remain as broad, and the third square in the same manner, but still more lightly (*Fig. 3*). The result will be three flat tints, each differing in depth and the last extremely light. Fill the lower row of three squares as follows:—Commence at the upper corner of the first with the full strength of the chalk, but while keeping the same breadth of line and the same distance apart, make each line very slightly lighter than its predecessor (*Fig. 4*). Commence the second square with the depth at which the first ended, gradually lightening the lines (*Fig. 5*), and so on with the third square (*Fig. 6*). Each square will be gradated in tint, and each lighter than its predecessor.

As a first study from models, place the cylinder and disc as in the first lesson of the previous section, and behind but not near to them a sheet of white paper or calico without creases and of such a size that each pupil can see the whole of the model against this light background, which should be turned to face the light as much as possible. White paper (cartridge or Whatman's Not) should be used for this drawing instead of the tinted. In this and all future studies first determine and express by flat tint of line all the shadowed portion, as in the first section, *Plate XLV., Fig. 5*, but before this is commenced

the teacher should explain and illustrate from the model *Relation* or *Contrast of Tone.*

Place a ball of black worsted in front of the light side of the cylinder. Draw attention to the fact that although the shadow side of the cylinder receives no direct light, yet it is so illumined by reflected light from the wall and objects in the room that it is considerably lighter than even the light side of the black ball. If the ball is placed against the shadow side of the cylinder, the student will see that the grey effect produced in his study in the first section (*Plate XLV., Fig. 5*) is nearer to the general effect or truth than a black or uneven tone.

This flat tint to represent the general effect of the shadow should now be laid on by lines, as in *Plate XLV., Fig. 5,* but of such a tone or depth as will express its contrast with the black ball on the one hand and the light background on the other. By contrast with the black ball the generally flat tint of the shadow will be more easily seen by the student (*Plate XLIX., Fig. 1*), and he will thus avoid the two most prevalent errors, viz., violent contrasts within the shadow by exaggerated reflected lights, and on the other hand, a tendency to blackness.

The student's attention should now be drawn to the *gradations* within the light and within the shadow.

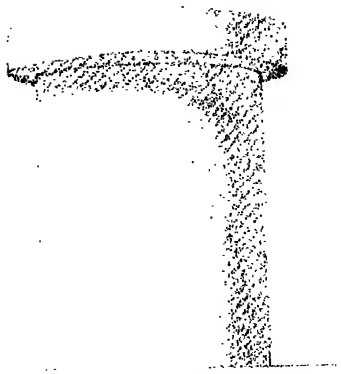
Although the portion of the highest light (the part at right angles to the plane of light) and also the line of the beginning of actual shadow can be easily determined, as in *Plate XLV., Fig. 5,* there is a gradual reduction of the light as it approaches the boundary of the shadow side of the cylinder and also a variation in the depth of the shadow (the darkest part being that next to the light), which requires further training to be able to see and to express.

This latter effect arises from two causes — first, it is actually darker, being turned away from the more illumined

Fig_1.

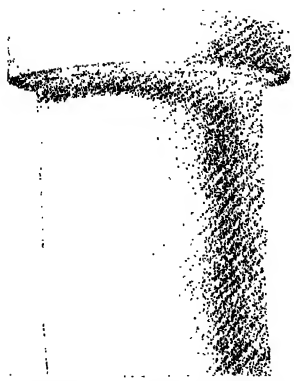
Shadow.

Fig_2.



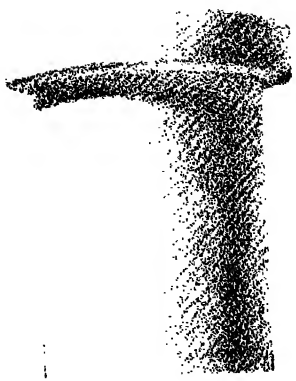
Shadow, light & half light.

Fig_3.



Shadow, light, half light, half tone.

Fig_4.



Complete.

Fig_5.

surfaces in the room, and therefore receiving less reflected light from them ; and secondly, this depth appears still deeper because it is contrasted with the lighted side of the cylinder. As an illustration of the effect of this juxtaposition of varying tints or tones, place side by side several long vertical slips, or flat washes of colour, each a little darker than its predecessor (*Plate XLVIII., Fig. 7*), and the result will be an appearance somewhat like a fluted column, each tint appearing concave instead of flat, the right-hand portion of each being made in effect lighter than the left-hand portion by contrast with the darker slip next to it, and the left-hand portion of each being made to appear darker by contrast to the lighter slip which it adjoins.

The position of the highest lights the student has already learned to determine in the first section. Leaving this now to be represented by the white paper, the remainder of the light should be covered with a tint as faint as possible, as shown in the lighter squares in *Plate XLVIII., Fig. 3*, at the same time passing this tint slightly over the edge of the shadow (*Plate XLIX., Fig. 2*). By passing this light tint a little way over the edge it will serve to make this the darker portion of the shadow as already explained. It is not necessary or desirable to mark by an outline the portion which is to be left white, but let the ends of the lines of the light tint form the shape. Advantage has already been taken of the texture of the paper and the broad slanting point to obtain a broad, open textured line as better expressive of the greyness of shadow than a hard, thin line, and, as a further aid to gradation, advantage may be taken of the natural tendency to lighten the line at its termination resulting from the shape of the hand (*Plate XLIX., Fig. 3*).

By means of the two tints now laid on we express (*a*) the shadows, (*b*) the high light, (*c*) the half light, (*d*) the darkening of the edge of the shadow. Add in the same manner the half

tone adjoining the line of shadow (*Plate XLIX., Fig. 4*) to complete the suggestion of the round surface of the cylinder.

We have made no mention of correcting by bread, or of niggle and stipple. With careful attention to the equal distance and equal strength of the lines of each tint, little correction will be needed. The whole system of teaching should be opposed to the notion, only too prevalent, that careless smear and coarse irregularities can be easily corrected without ultimate damage to the work. To correct these errors the drawing has to be breaded and stippled all over, and besides the waste of labour, the freshness of the study is destroyed, and the habit is acquired of working so close to the drawing as to be unable to see the effect on the whole of the portion under alteration. True finish can only be attended to when the eye is far enough away from the paper so as to see the whole drawing easily. *Let no corrections, by bread or by stipple, be made, except when the student is sitting straight up and well away from his drawing.*

Should the execution, by its imperfection, have resulted in a few dark spots here and there which can be seen to interfere with the due gradation *at this distance*, remove these by a little stale bread made into a pointed pellet between the thumb and finger, and pressed on the dark spot, *but not rubbed.* This will remove the superfluous chalk or pencil without smearing. A piece of very soft rubber can be used in the same manner, by pressing but not rubbing.

On the other hand the texture in the deeper parts of the shadow may be too coarse from the white interstices of the paper showing too strongly. Turn the broad slanting point of the crayon, and holding it vertically, touch these points of light, but always sitting well away from the drawing. *Remember the more nearly the study approaches finish the more is it necessary that the eye should take in the whole drawing*, or niggle and falseness of tone and gradation will take the place of true

finish. *Plate XLIX., Fig. 5,* shows this process of giving a finer texture and gradation to the darker parts of the work. Stipple should be absolutely unnecessary in the lighter tints.

If the study is made on grey paper, there will be no need to put on a tint for the half light, as the tone of the paper will represent the half light, and it will only be necessary to express the portion of the high light with white chalk as already explained in the first section.

Months and years of misdirected labour in point sharpening and pellet making will be saved, and bending over the work, so hurtful to the eyes and to the spine, be unnecessary if the above directions are kept in mind.

On *Plates XLVII., Fig. 2, L., LI., Fig. 2,* and *LII.,* are examples of models, casts, and foliage, on white and tinted paper, in varying degrees of finish, but each true in its suggestiveness—each right as far as it goes. This suggestiveness, rather than the complete imitative realisation, should be the chief aim of the lessons on shading with chalk or pencil, whether from geometric models, casts of ornament, foliage from nature, casts of the figure or from life. In each study on grey paper the order of work will be—

1st. The outline of the form lightly indicated.

2nd. The outline of the portions in shadow (receiving no direct light) lightly indicated.

3rd. These shadow forms filled with a flat tint.

4th. The highest lights expressed with white chalk.

5th. The half tones.

If on white paper No. 4 will be—

The half light tint over all except the highest light.

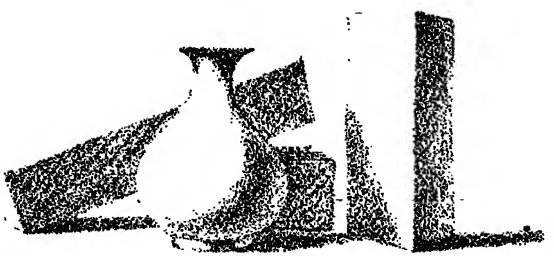
The work as a whole should be carefully examined; sitting well away from it, and half closing the eyes to compare it with the model. Without bending over the work add such detail and further gradation as may be seen in the model, but so do this as not to destroy the greater truth of the whole. For

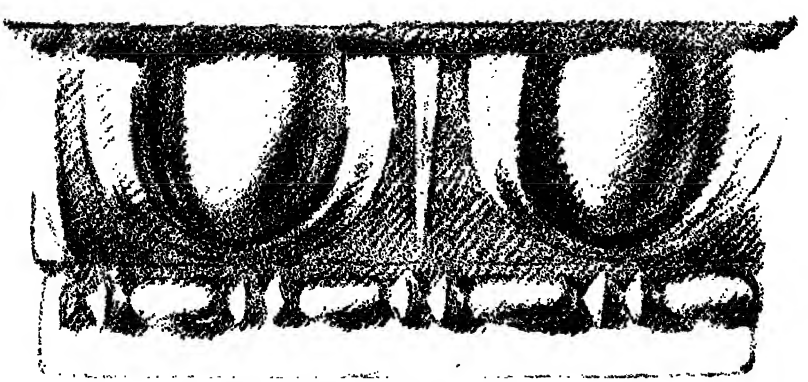
these earlier exercises it is best to use light unpolished objects and casts of vases, darker or partly coloured objects to be occasionally introduced in later studies.

It is, however, a too general practice to require the student to treat these dark forms as if they were white. This is most injurious. It is possible for a very clever artist to so separate light and shade from tone produced by local colour as to make an approximately correct study, but it is an impossibility to a student. It is hurtful to his sense and feeling for truth, and is destructive of the main object of the course, which is to develop the power to see and to express the true relations of contrast and gradation of tone in the object before him. In a dark unpolished object the highest light may be darker than the deepest shadow of a white object, but with the exception of this lowering of the tone the process will be the same as with white objects. Glass and glazed objects may also be afterwards introduced. Work should be done both on white and on a light grey paper.

For those students who have acquired the power of flat tinting in colour, as explained in the Freehand section, the course of light and shade in chalk or pencil may be shortened to the first lessons in contrast and gradation of tone, for this knowledge of the planes of shadow, half light, half shadow, and high light can be quickest expressed by flat washing, as may be seen on *Plate LIII., Fig. 3*, in which the roundness of a sphere is fairly expressed by three flat washes of raw umber. If placed several feet away the resemblance to a sphere will be even more marked. When dry, wash all with clean water, and while damp, but not so wet as to cause the washes to run, lay on two intermediate washes to still further develop the roundness (*Plate LIII., Fig. 4*).

If high finish is required, the edges of the washes may be slightly stippled with a fine brush, as in chalk or pencil (*Plate LIII., Fig 5*). For practice in body colour, or tempera, mix





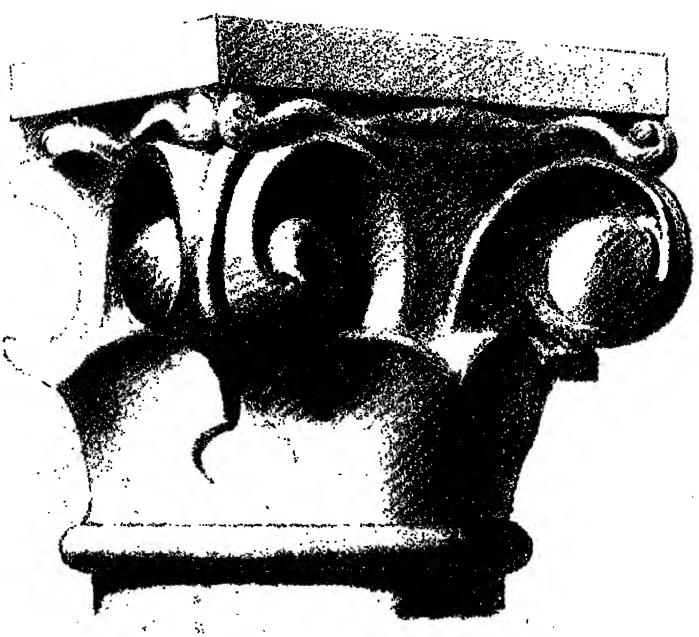


Fig_1.

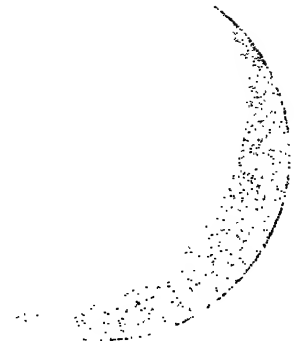


Fig_2.

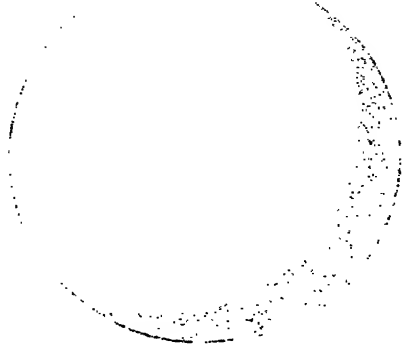
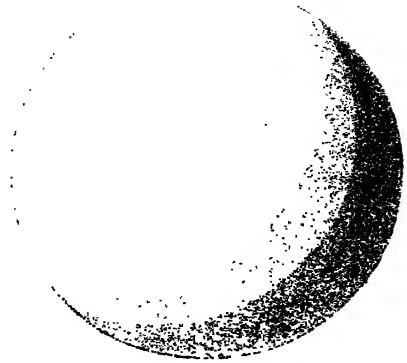


Fig_3.



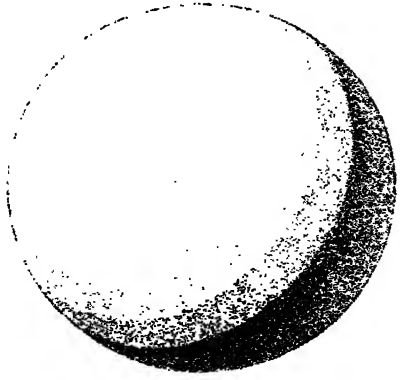


Fig_4

Fig_5

three or four tints of raw, or burnt umber and white for the shadow, half tone and half light, and lay on in the same order, slightly blending the edges after all are laid on.

The processes explained above are equally applicable to tone (or light and shade) studies from plants, the human figure, landscapes, and interiors. A short course of Sciography, or the projection of shadows, referred to in the chapter on Geometry (pp. 121, 122), will be interesting to those students who have a knowledge of solid geometry, and will be of practical after use, as giving the principles which govern the *shapes* of shadows.

CHAPTER XIX.

ELEMENTARY MODELLING.

THIS all-important subject, in spite of several recent changes in the regulations, is still excluded from the elementary work of our national system of art education, and can only be taken up even in schools of art under such conditions as practically to limit its teaching to a very few schools. It is isolated in an advanced section, instead of its beginnings forming an essential part of the elementary section (Group A). It should be an additional, though at present an optional subject, in the Art-class Teacher's and the Elementary Art Master's Certificate, instead of which its teaching is limited to art masters, comparatively few of whom have been trained in the subject. It is this isolation, and not the question of willingness to learn or to teach, which has kept this subject within such narrow limits.

The elements of the art can easily be acquired by all who have a fair knowledge of ornamental and model drawing, and if it were made part of the elementary stages of instruction, it would soon form a part of the work of nearly every school of art, art night-class, and elementary and public schools. Little headway will be made until equal facilities and inducements are offered to the teaching of modelling as are now given to freehand and model drawing, and also the work tested by gradated examinations on similar lines to those in drawing, painting, and design. Until this is done the most valuable means for linking art teaching with industrial art is neglected,

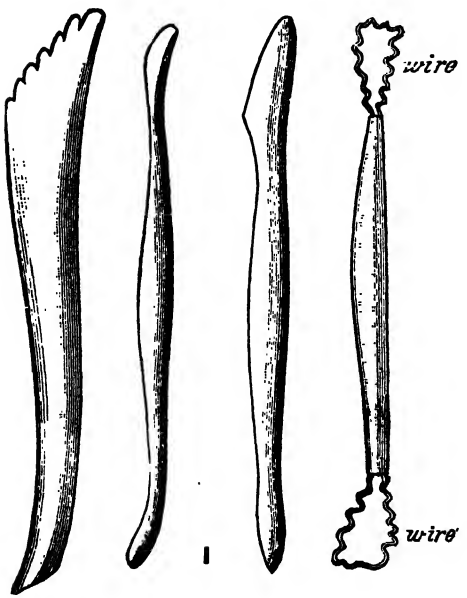
as a model of a design, however slight, will generally test its practicability, while the suggestions given when working in clay by the material itself stimulate the designing faculty to a much higher degree than the brush or pencil. In all rounded forms (pottery, terra cotta, bronzes, architectural enrichments, gold and silver ware, glass, &c.), the effect of both shape and ornament can be more truly seen and more easily expressed in modelling than by a shaded or tinted drawing; for much knowledge and long practice in drawing, in the effects of foreshortening, in light and shade, &c., are needed before the designer can express the true effect of a design in a drawing, and this preliminary training is not needed if the design is modelled.

To the architectural student it is of use not only for these reasons, but as an antidote to his universal use of the T-square and set squares. These too generally form his only implements, and many of these students are unable to draw a single leaf, or design and model the simplest ornaments.

Modelling should, however, be preceded by a power of line obtained by freehand drawing, and should be taught concurrently with further practice in this and in model drawing. There are those who say drawing is of no use to a modeller. Modelling *can* be taught without drawing, but the progress is slow, the method is roundabout instead of direct, and the educational training is more limited.

Modelling should have had a place in our elementary and public schools in preference to light and shade. It is even easier to teach than model drawing. Freehand drawing from the flat represents the *facts* of lines and plane surfaces, model drawing the *appearances* of facts in solids;—of their dimensions according to the position of the spectator,—while modelling deals *directly* with the *facts* of solids. Its elements are therefore easier to learn and to teach than those of model drawing, and should form part of the work from Standard IV.

The materials required are clay (pipeclay or terra cotta), an ordinary slate, two or three tools of hard wood (which many students will take delight in making) shown half size in Fig. 1, a flat strip of wood about two inches by eight inches and half an inch thick, and an inch scale. The clay can be used repeatedly if kept moist, and there will be little waste or dirt with ordinary care. The best tools are the thumb and fingers, the use of which should be encouraged whenever possible in preference to the wooden tools. That which may be considered as conventionality arising out of material and treatment, comes of this direct contact of the clay and hand, and in this respect is closely allied to the brush forms in ornament, which have been evolved of the use by the hand of a soft, yielding, yet somewhat elastic point.



Young children are first exercised in Kindergartens by the making of geometrical solids in clay. This is difficult and not very interesting. For the first exercises in the infant school the varnished cardboard shapes may be used for tracing round. Let each slate be covered with clay about half an inch thick. This should be made tolerably even by a process of kneading with the hand, and especially with the thumb. When nearly uniform, the straight slip of wood may be passed over it to make it smooth. On the clay place one of the simpler forms,

as *Fig. 1 or 7, Plate I.*, and mark round it as already explained in drawing, using a slate pencil, a pointed stick, or one of the tools. Then remove the cardboard example and cut away the clay outside the tracing, so as to leave the form standing clear and raised from the surrounding slate, with a perpendicular edge or with an edge slanting outward. The best shapes on *Plate I.* for these exercises are *1, 5, 6, 7, 8, 18, 20, 21, 22, 23*, and many of the letters and figures on *Plate III.*

The simple moulding shown in elevation and section (Fig. 2)

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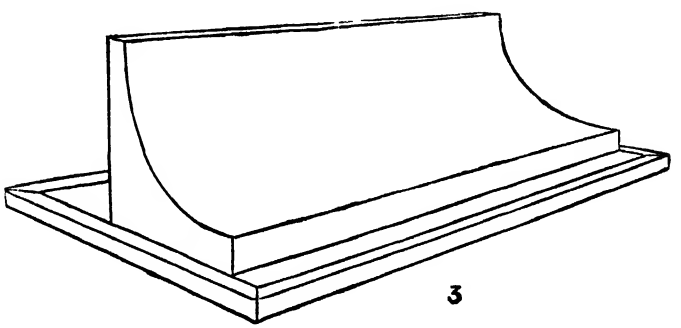
worked across the length of the slate (Fig. 3), will give the first



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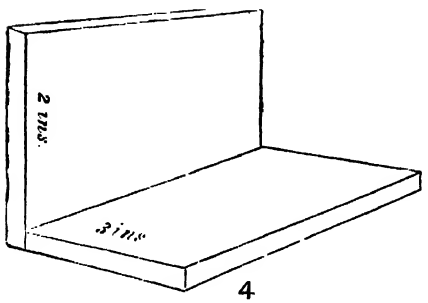
exercise in length, breadth, and thickness, and in making such a curved form as is the easiest for the thumb to work.

Let the pupils spread across the length of their slates a layer of clay an inch thick and six inches wide. Cut this horizontally into two equal parts of three inches wide, and lift the upper portion upright at right angles to and against the lower. This

will give two surfaces at right angles, the inner measure of which will be two inches by three inches, and the length that of the slate (Fig. 4). In adding the curved form by pressing piece after piece of clay into the angle to make the moulding, the work should be constantly tested by the pupil from the side or edge view in addition to the front, comparing it with the drawing of the section on the blackboard. This habit of examining the work and the example in every direction will require careful fostering, for the facts of *solids* have now to be reproduced, and the student has to judge not only the length and breadth but the thickness of every part—the varying projection from his slate.



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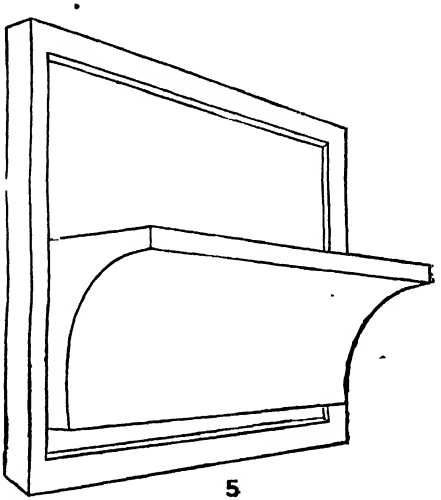
This is so evidently essential in all modelling that it would seem needless to do more than name it, but examinations in elementary modelling too often prove that this question of relative *projection* of parts has not been habitually considered, and the work is untrue in this respect (too flat) although correct in the length and breadth. If the slate be now held nearly vertical the pupil will see a moulding often used in architecture (Fig. 5).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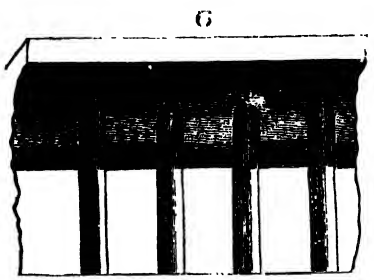
The elevation and section should be drawn by the teacher on the blackboard, and the work explained to the whole class by the help of two strips of wood fastened at right angles. The curved form of the first example at least might also be roughly modelled by the teacher before the class in the angle of these strips.

Do not let the pupil make the surface over smooth; care only that the shape when looked at edgeways is generally true to the section. Polish or high finish is here worse than useless, and corresponds to the waste of high stipple, &c., in drawing.

In this and all succeeding lessons, give some exercise to the spirit of design which has already been encouraged in the drawing exercises on squared paper, &c. Let the pupil mark on the front from his scale widths of an inch, and with the middle finger make indentations downward (Fig. 6), curved in section, which viewed a little on one side when the slate is



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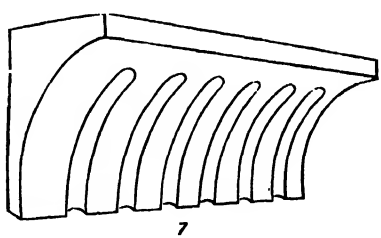

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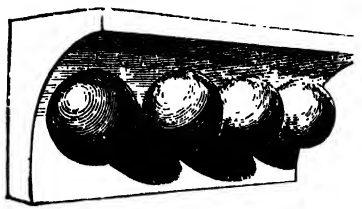
upright will appear as in Fig. 7. Complete these with the wooden tool if necessary.

As a second example, on a moulding of the same section as the previous one, mark intervals of three inches apart in the hollow of the curve, and slightly indent the clay at these points with the finger. Let the pupils make balls in their hands, each about two inches in diameter (this is not difficult), and attach

these, by wetting, to the indented parts (Fig. 8). These will enrich the moulding, and if a form similar to Fig. 9 be made



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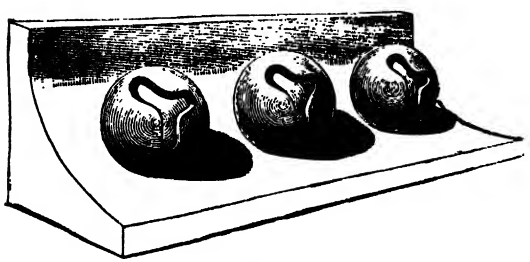
in each ball with the wooden tool we have the well-known ball flower decoration of the middle Gothic period (Fig. 10).

As a third exercise on the same kind of section, cut out of a piece of stiff paper or cardboard the form (Fig. 11) about



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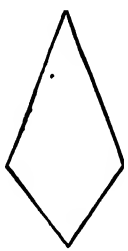

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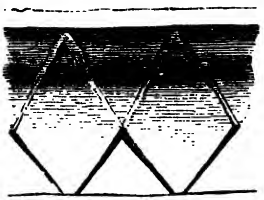
three and a half inches long; then lay a thin and tolerably even layer of clay on the slate about a quarter of an inch thick, and, placing the cardboard on it, cut out a series of these forms in the clay. Lay these side by side on the moulding as in Fig. 12. The effect will be seen in Fig. 13, and will show even more than in Fig. 7 the great change and enrichment of these simple forms caused by placing them on a curved surface. Not only are all the straight lines changed into curved lines, but when seen as shown in Fig. 13 no two of these curves are alike.

As a final exercise on enriching this shaped section, ask the

pupils to bring a slight pencil sketch of any other form with which to ornament the moulding, and allow such of these as may be considered suitable to be worked in the clay, by this



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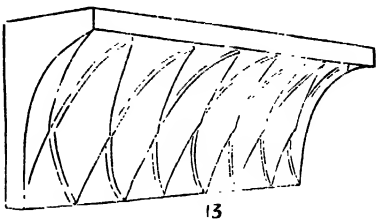

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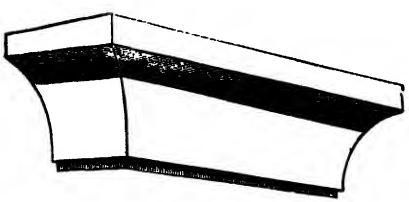
means still further stimulating the designing faculty, first by noting the effect of the repetition of the enrichments, and then the further enrichment caused by placing them on the curved surface of the moulding.

Before leaving this moulding it may be well to give the first exercises in returns or angles of mouldings (Figs. 14 and 15),



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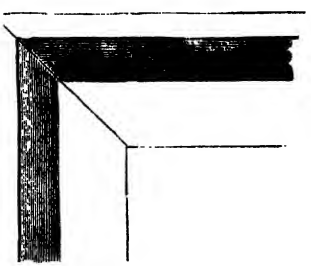

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Any joiner will supply the teacher with a piece of moulding with a return to be exhibited to the class to show what is required.

In commencing to teach modelling, the first exercises given are generally copies from casts of ornament in low relief on flat surfaces. This requires a cast for each student, deals but

slightly and too subtilly with the great modelling question of varying degrees of projection, and gives no exercise in design, being merely copying. It will be seen that the few exercises already given and those to follow have the following advantages :—

(*a*) Modelling can be taught collectively by them.

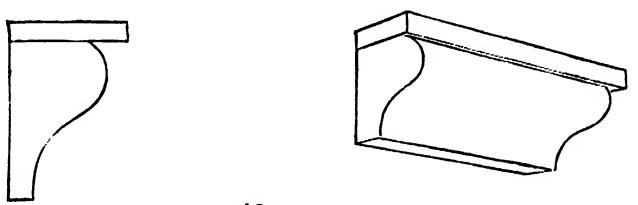
(*b*) They deal fully with length, breadth, and *thickness.*

(*c*) They stimulate the design faculty from the first.

(*d*) They show the change of line and the varied effect when simple forms are applied to curved surfaces.

It is a golden rule in modelling to build up bit by bit and carve out as little as possible. It is this, combined with the ease of execution, which makes modelling educationally much more valuable than carving, for its method of work is closely analogous to the methods of good drawing, *building up* the main features of the work in mass and afterwards enriching this mass with detail.

While this is insisted upon in early training, we must not forget that the expert workman is master of his materials, and may use both methods as he pleases, especially so when designing or composing. In teaching the technique, adhere as much as possible to the golden rule, but in even the early exercises in design let the student employ both methods, so as to allow scope for those suggestions which are evolved mainly from the actual process of working in the clay.



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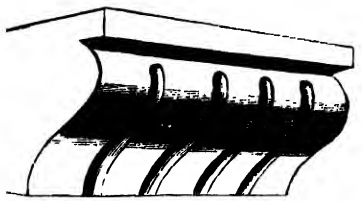
Select as a second moulding the ogee (Fig. 16), the working

of which needs little further explanation. Decorate this with the enrichments already used, but reversing the leaf form (Figs.



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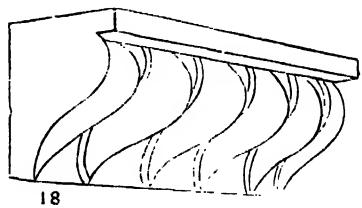

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17 and 18). Again note the change of effect caused by placing them on the moulding.

A further step may now be taken, by modelling the usual leaf decoration of this moulding (Fig. 19). In this we deal not only with the modelling of a curve of one section throughout, as in the plain mouldings, the repetition of simple incisions, or the placing on the curved forms shapes of equal thickness; but with a form which, although generally following the contour of the moulding, is full of delicate changes of relief, in some parts projecting considerably, in others flush with, and again in others cut into the contour of the moulding it decorates. All that possibly can should be done with the thumb and finger in gradually laying on the raised portions and in making the depressions, using the tool sparingly. An enlarged section and drawing (Fig. 19) should be made on the blackboard; and it is also desirable that a cast be shown, or, better still, that the model itself should be at least partly executed in clay before the class, the tool being used sparingly.

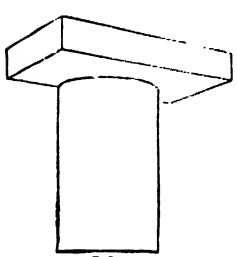
19

This and similar exercises correspond in artistic and execu-

tive difficulty with the completed studies in tone given in the section on light and shade. The work when finished has hitherto been such as can be tested by measurement, but now the changes of relief and depression (contours) are so many and subtle that right and wrong in finish can only be judged by the eye. Measurement may be of use in testing the shape of the moulding and the projection or depression of a few selected parts, but for all else the artistic faculty which has been in process of development is the only practical guide.

Another good example is the echinus moulding (*Plate L., Fig. 3*). Obtain the shape of the section first, as in the previous mouldings, and afterwards sink or carve out the ornamental form. This is an example in which the detail can mainly be carved or scooped out instead of being built up, as by so doing it is easier to preserve the true section of the form.

Commence the next model with a half cylinder, and a rectangular block twice as long as its width (Fig. 20). Add gradually to the upper part of the half cylinder until the curved form merges into the rectangular form of the top, thus forming the half bell and abacus of a capital (Fig. 21). Afterwards add



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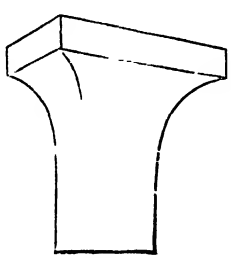

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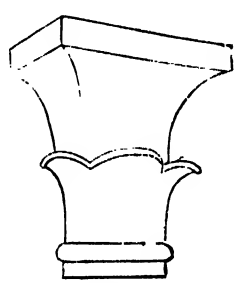

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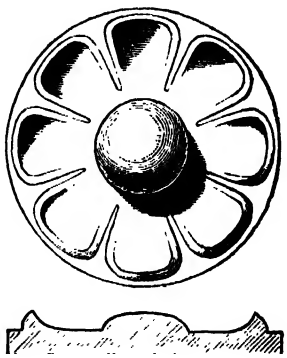
the necking at the base and a little of the shaft, also decorating the lower part of the bell with forms as shown in Fig. 22. The

capital (*Plate LI.*) can afterwards be attempted. Some simple rosettes, such as Fig. 23, drawings or casts of which can easily be obtained, or more complicated forms, as in *Fig. 1*, *Plate LII.*, might follow. Other forms of decoration can be invented, or may be seen in books on architecture or ornament.



The objects of these lessons have been to impress upon the pupil that he has constantly to make length, breadth, and thickness; to give him some power of execution in the clay without its being too difficult or minute, to give exercise to the design faculty, and to do these by a short and interesting course of collective teaching possible in a school.

A few well-chosen casts of ornament should now be copied (larger or smaller than the cast), selected from Roman and Renaissance pilasters, panels, ornamental foliage, and enriched mouldings, and Early English and Decorated diapers, capitals, and enriched mouldings. These can also be used as the bases for exercises in design by requiring variations on the originals, using natural forms. Any of the pupils' work which may be worth preserving can be baked at a very moderate cost in a brick-kiln, and should be hung in the schoolroom.

We have carried this subject no further than can be easily taught on slates to pupils at school. Slates, plaster slabs, or boards, are bad to model ornament or other delicate forms directly on, the modelling being so much better when worked into the soft clay. This has been secured in the lessons given in detail, and thus the usual hard, formal, and expressionless modelling common on slates may be avoided.

In modelling the panels, pateras, pilasters, &c., suggested

above, continue this practice of first placing a layer of clay over the slate and on this model the panel or pateras, remembering that as in nature and also in light and shade and painting the charm results from that mystery which comes of losing and finding, of contrast and gradation.

CHAPTER XX.

A CHAPTER ON DESIGN.

DESIGN is not a principal subject in many schools of art, and in the majority of the schools in which it does form part of the instruction there is no possible opportunity for its systematic teaching, even as an advanced section of study, because it has not been incorporated in the curriculum as an essential part of the earliest education of every student.

After years occupied in learning technique, a student is asked to make a design to fill a given shape or for some object of manufacture as a wall paper, lace, pottery, brass-work, &c. The play of fancy required for this has been necessarily repressed by the discipline required in teaching technique (instead of its being developed along with it), and there is now much greater difficulty in bringing the design faculty into action than would have been the case had both faculties been trained together. Also the results of the first attempts will be so disproportioned to the student's executive power as to cause him to ridicule his own work, and to require the greatest efforts on the part of the teacher to encourage him to continue. This is one cause of the widespread notion that so few can design and that design cannot be taught.

All this has arisen from the regulation which made design an advanced subject only at the end of a long course of study in technique, instead of its running concurrently with it.

The history of the teaching of design to any extent under the Art Department may be said to begin with the *vivisection* period, under which the analysis and flat geometric treatment of plant forms (sections, structures, and skeletons) were carried to such an extent that the plant itself—the resultant—with its thousand and one beauties of growth, line, and colour, was overlooked. This system originated as a protest against and remedy for the indiscriminate and inappropriate use of natural forms then so universal. Design this latter could not be called, and one of the most remarkable facts of the first half of this century is the general absence in England of the slightest power of design or even of adaptation in industrial and, it might almost be said, in fine art too. The publication of Owen Jones' *Grammar of Ornament* was a godsend to manufacturers, but the manner of its use only showed the absence of this power of design, as the specimens were generally stuck on indiscriminately. Fortunately, the protest, having erred on the other side, did not continue long enough to carry its theory to the study of animals and the human figure as applied to design, or we might have seen some strange results.

A wider view of the subject was taken by such men as Stevens, Sykes, Hudson, and Moody. This latter artist—whom the author had the pleasure of knowing as a fellow-student—became the teacher of design at South Kensington, and as such was most successful in inspiring his class. He took a wider view of the limitations which bind the decorative artist in the application of material than did his predecessors of the vivisection period, but the result of his teaching was not in every respect such as he himself would have wished. The students naturally followed his leanings towards the strongest period of the Renaissance (from which he largely drew his examples and his inspiration), but the majority contented themselves with only using up the materials of this period in their designs, and neglected his injunctions to study and gather from nature new

inspiration and materials. Hence arose what has been called—somewhat unfairly—the South Kensington style, and which has been described as 'Renaissance with all the beauty of the Renaissance left out.'

These two extremes, however, paved the way for and prepared suitable material to be impressed by the work of such men as Stevens, Morris, Burne-Jones, Walter Crane, De Morgan, and others. By the influence of their work a change for the better has come over the design of our schools within the last dozen years; and the hard-and-fast line separating the artist, designer, and workman, is happily becoming somewhat less marked. This separation, which was rather emphasised by the practical working of the Departmental system, was based on an assumption that design is of no use to the painter or sculptor, and that on the other hand severe and expressive drawing is of little use to the designer and art workman; that there is no training common to and necessary for all artists. Hence too often our painting and sculpture lack design, and our designs are empty for want of technique and power over new material. This was not so in the best periods of art. The art workman and ornamental designer have left proof that their art training both in kind and in thoroughness was the same as that of those who reached higher than they. The tide, however, has turned. Several of our greatest artists are now exercising their high powers on decorative art, and our workmen are slowly catching the inspiration. The work seen in the Arts and Crafts exhibitions could not have been produced a few years ago. It was also recognised that the special application of this art power—this power of expression in any particular material and direction—was not by any means so difficult to acquire as the obtaining of the art power itself. A few weeks in a manufactory will sufficiently show to one who possesses this art power, enough of the possibilities and desirabilities of its

products as shall enable him to begin to imbue them with art which shall be practical.

Another cause of this separation of training, so far as the designer is concerned, is the very abundance of the appliances of art we now possess. A designer argued that there was now no need for them to study the figure, animals, plants, &c., from nature, because of the abundance of photographs of these things at hand, and also of the designs of the past and the present. No wonder that we get second-hand and uninteresting decorative art. These aids are useful and no one would despise them, but they cannot be substitutes for earnest study of nature, because work done from these lacks that impress of the individual artist which only comes of using stores of his own gathering, and which is the great charm of all true art. The object, too, of the study of antique and modern art if pursued alone, is too often merely to accumulate material for cribs, and is indiscriminate and enervating instead of being that methodical and systematic study which results in a knowledge of the growth, unity, and beauty of the styles; by which only can we build with new materials on the experience of the past.

The design exercises in the various historic styles given to test the student's knowledge, memory, and invention, by rearranging the materials of these styles into new combinations, are apt to be taken as the limits of design (and the designer is content to go on always reproducing and adapting old styles with variations) instead of this practice being considered as one of the means to guide him into the best use of the materials which he has gathered from nature and assimilated. Those who thus limit their practice too often show that they have not acquired a power of assimilation, for if they have to introduce into their reproductions and adaptations any new material from nature, they generally fail to incorporate it thoroughly with the other portion of the design. In thus trying to galvanise an old style into new life, they go con-

trary to the very spirit of the men whose work they would imitate, for these feared not to incorporate in their art the thought and work of their own day. In the Renaissance itself this was especially manifest.

It would be well if these exercises in the styles were frankly called *adaptations* or variations instead of designs, and that they should generally consist of a careful drawing or model from some standard example, and alongside of it the adaptation or variation of the same. Students would by this practice gain knowledge of the essentials of the styles, instead of merely accumulating materials.

The design faculty is as common as the executive and gathering faculties, but all these require simultaneous stimulus, direction, and discipline.

Before lecturing on the history of art or on the elements and principles of ornament, let practice somewhat precede theory by simple exercises in flat decoration, such as repeats—horizontal, vertical, circular, or in every direction (diapers)—giving the elemental forms and the space to be decorated. These limitations are most valuable in aiding the first efforts of the student. They concentrate his attention, give him material to begin with, and save much helpless floundering and despair, for without limits the student feels hopelessly stranded. But do not at present trouble him with any question as to the application of his design to manufacture. He produces a design by the materials at his command—the lead pencil, the brush and colour, or the clay, and that is sufficient at present. Draw an example on the blackboard to illustrate one use of the elements given. This should be copied by the class, and each student should afterwards attempt another combination. Various hints on this elementary portion will be found on p. 18, and pp. 38-41, and also in the chapter on modelling.

As soon as possible, alternate these lessons on the combination of geometric and abstract lines with similar flat designs,

but using as elements the leaves, &c., of some plants which the students have been drawing from nature (*e.g.*, ivy). Illustrate on the blackboard the different types of leaves seen in the same plant, the variety of lines and shapes which can be obtained by viewing these leaves in different positions—the junctions of the stems, the individual berry, and the arrangement of the clusters of the berries. Let the student make any orderly arrangement of these materials as borders, &c., as in previous lessons, the teacher showing one arrangement on the blackboard and giving the main lines for another arrangement.

As a next step, go to the opposite pole and ask for a panel to be filled decoratively with the ivy (or any other plant which has been studied), showing its growth, and only bending and combining it so as to agreeably fill the space. A border to this may be designed on the principles shown in the two previous classes of exercises, and thus one primary use and purpose of these border treatments can be shown and also the two extremes of conventionalism. The tendency at first will be to make the designs too naturalistic—too full of minor facts. A few hints on the blackboard, and the previous practice in abstract forms will soon teach how to generalise without losing the character and individuality of the plant.

As a further help towards this end, let the design be carried as far as possible from the student's recollection of the plant. It is a most valuable help to designing, certainly a help in teaching it, that the design be carried well forward without actual reference to the plants, animals, &c., which are being used as the elements. If the student's memory is not sufficient to begin the design, let a careful drawing of the plant be made with a view to designing from it, especially noticing its essentials; but this drawing should be put away before beginning the design, and if the memory need to be refreshed from the plant or from the drawing of it, even then let the work be from the memory of this refresher and not directly

from the plant or the drawing. By this means the student is more likely to master its essentials and to make it subservient to his purpose, whereas if the plant is before him it is too much his master. Fuseli said 'nature put him out.' It must have been only in this sense. The teacher may first sketch on the blackboard two or three principal lines, such as shall not violate the principles of growth of the plant chosen, these to form the basis of the designs. Many of the drawings of plants in an old herbal will be full of suggestions to the teacher for the decorative treatment of plants without losing their distinctive characteristics. During the progress of the designs, it will be easy to check want of proportion, balance, quantity, and strength or grace of line.

All the designs from the first may be exercises in mass and colour by flat tinting, as explained in the section on colour. With regard to choice of contrasting and harmonising colours, it is necessary to cultivate in the student habits of observation of nature. A hedge-side or a moor in spring or autumn, or a bramble-bush in autumn or winter, will give almost inexhaustible hints to an intelligent student, not only in contrasts and harmonies of colour but also in tones. A little guidance as to how to make use of these hints from nature, will be worth all the lectures on theory of colour or all the colour schemes evolved from the inner consciousness. This observation of nature gave inspiration to the best colourists, and yet it too often seems the last thing on which the attention of the student is fixed.

It will be seen that the above method is directly opposed to the system which insists on extreme conventionalism when beginning to introduce the *growth* of plants. To begin with this treatment of the growth is to do violence to all the best susceptibilities of the student, and is quite another thing to the conventionalism of arranging leaves, flowers, and fruit, in an ordered succession, without suggestion of their precise manner

of growth. The flattened-out, symmetrical arrangement of the growth comes of the necessities of material and manufacture, of the limited power of the artist, of the purpose, importance, or subordination of the object to be decorated, of priestly domination, or of the equally powerful domination of precedent. Of these limitations the student has at present only need to consider the two first, viz., the limits of his own powers and of his materials. His powers reach to the faithful representation of the forms by outline, and to a further expression of these forms against the ground by a flat tint—an effect not far removed from nature, being similar to that produced by seeing forms against the sky. Let these powers have full scope as long as the study has to stand alone as a complete whole, and not as part of a more or less important scheme of design, being conventionalised only by the means for manufacture used (the pencil, paper, colour, and brush), the student's powers, and the necessity for a pleasant distribution over the space. He need not at present be troubled with the often misused word conventionalism, which covers much bad drawing and impudent arrogance.

All art is conventional, because means have to be used more or less suited but never perfectly adapted, and powers exercised which are finite. The difference between a picture and a mere transcript from nature, if the latter were possible, is due to the conventionalism arising from selection and arrangement and from the material employed, the amount of which conventionalism is not usually considered by those who limit the word to the treatment needed in ornamenting that which has to occupy the lower position in a decorative scheme. Note the treatment of the hair of a dog by Landseer—two flat tones of colour, and between them, where only the hair appears as such, a few lines with a brush are all that show the texture of hair; also the treatment of hair by the Greek sculptors necessitated by the material being marble. A further limitation is seen,

however, in the painting and sculpture of the best periods, when the selection and arrangement—the limits of the scheme of colour and of composition—have to be considered not only in relation to the picture itself but as part of an architectural scheme, yet still without doing violence to nature.

White chalk on slates or blackboards and charcoal on paper, are most useful in rapidly expressing the first idea of a design either in line or mass, as a preliminary to the more careful work of the pencil. The effect is better seen, and the softness of the material not only allows a larger scale of work but stimulates somewhat the imaginative powers.

So far what have been absolutely required are selection and arrangement. Little opportunity has been given for the exercise of imagination. If this faculty has been exercised at all, it has only been by the invention of new forms by combination. Yet this is the special design faculty which it is agreed cannot be implanted, and hence the saying that design cannot be taught. But the same argument applies to the power of arrangement and combination, for it is always assumed that these are present, and that teaching is only developing and guiding them. The higher faculty of imagination must also be present, but is there a child who cannot evolve some ideas, some definite shapes from the damp stains on a plastered wall, or who does not see weird and fantastic shapes when in the deepening twilight, or in the clouds as they fly? Are there any children who have not 'make believes,' faces in the fire, castles in the air? The designing faculty is rarely separated from the gathering faculty, it is a fruit of the assimilation of the gatherings.

For very young pupils a plastered wall with damp stains would be the best possible surface for a first exercise in imagination, as with a pencil and white chalk the suggested forms could easily be emphasised; but, in lieu of this, let the pupils' slates be covered over with white demonstration chalk,

and this made uneven by touching here and there with a dry folded cloth. Let each slate be placed at arm's length, and be looked at with half closed eyes to see if there are any suggestions of forms which can be recognised as resembling in any degree leaf or flower, bird or animal, object, picture, or any of the ornamental forms with which the pupil is already conversant; these forms to be cleared and made more definite by the finger and a damp cloth, and by adding new lines with the point of the chalk or slate pencil. These emphasised suggestions should then be copied on paper and still further developed. It may require the stimulus of seeing something evolved by the teacher on the black board to set the pupils going, but let this be simple and within their power, and not as a specimen of the power of the teacher. The teacher may towards the end of the lesson begin again, and show to the class the possibilities to him of such suggestions.

This may seem a childish exercise, but its object is to show that these fancies may and do lead to artistic creations, and to encourage their exercise lest the power die. Care not if the pupil's combinations are absurd. Even in advanced work we are apt to ridicule and to call absurd everything which does not appear in the sequence to which we are accustomed, or is not in harmony with our preconceived notions.

A next step may be the decoration of vase forms, but not at present the decoration of *drawings* of vase forms. Vases in terra cotta or in plaster can be purchased for a few pence each, and can be used over and over again by applying a coat of white to cover up any unsuccessful design. Much time is wasted by beginning to teach the decoration of surfaces of varying contour by means of a drawing of the object on the flat. On *Plate XLIV., Fig. 5*, is represented the effect of a series of straight lines, and of a series of small circles placed round a vase. Now, although the design is simply one straight line and one circle repeated, it would be absurd to ask an elementary

student to express this correctly on a drawing of the vase; he may, however, soon acquire the power to do this after a little experience of the effect on the vase itself. Nothing is more lamentable than to see students going on for years making absurd errors and impossible designs for lack of this little knowledge, groping in the dark as to the real effect of their designs made on paper without experience of their shape and relation on the actual forms they are intended to decorate.

Geometric projection, as shown on *Plate XLIV.*, will be useful when designing for vase forms has to be done on paper. Most students learn solid geometry, but are seldom taught how to apply it, and this is a good instance of the necessity for showing the connexion of geometry with future work.

Designing for relief decoration should be first commenced in clay and not on paper. The method adopted in the chapter on modelling teaches the use of clay as a means for expressing design, and the student who has practised it will soon find that of all materials this is the most suggestive. Possessing but the slightest notion or *motif* to begin with, the very manipulation of the clay evolves new forms and combinations, and allows, more than any other material, that play of fancy which is analogous to seeing faces in the fire, or forms and compositions on a damp wall. Yet many designers for relief work cannot model, with the result that, missing this valuable training by which they deal with the *reality*, they take the much longer and less sure course of learning to express the *appearance*. This latter, as it deals with the appearance of an infinite variety of relief—of losing and finding—can only be thought out and expressed on the flat in a crude and imperfect manner except by a well-trained artist; and if these relief enrichments, instead of being on a flat surface as a panel or spandril, are to form part of complicated mouldings, enrichments of vase-like forms, &c., the difficulty is again increased. Hence arise figures and foliated ornaments, appearing as if stuck on instead of being irremovable essentials

of the form. A manufacturer once informed me that 'they had plenty of ornaments to stick on.'

Much of the foregoing practice should precede lectures on architecture, historic ornament, and on the elements and principles of ornament, instead of as is too often the case following these lectures, with the result that the scope and purpose of the lectures are but little understood. Practice preceding history and theory, and also continued concurrently with them, is the only way to secure the lecturer being in touch with the class.

The first of these courses should be a very short one on architecture, dealing mainly with the structural differences of the few principal styles so as to impress their contrast. It is usual to reverse this order and to begin with lectures on the elements and principles of ornament; those on architecture being seldom reached. Considering how much decorative art grows out of architecture, and how much is still in its service, it is essential that this subject should precede the other lectures to secure style and proportion.

The lectures on the history and principles of ornament should make clear the close relation of the styles to each other—their growth, the influences which attended this growth, their periods of budding, of fulness and decay; that their fulness was when the insight into and love for nature was keenest, and that their decay began when this insight and love were blunted and the inspiration they gave had ceased. In this way will the student be able to attach the true value to the lessons to be derived from each period—much from all, but more from some than from others.

Along with these lectures, the designing spirit should be kept up by requiring exercises in such applied design as will allow the special requirements of processes to be easily explained to the student, such as under-glaze painting on pottery (similar to painting on an absorbent ground), stained

glass, embroidery, stencilling, wrought iron, repoussé, wood carving, cast iron, niello work, terra cotta, mosaic, &c., the teacher drawing special attention to the effect of the processes on the character of the designs.

In addition, lessons should be given on adapting selected designs executed in one material, so that they may be suitable for another material requiring different treatment; for example, a relief design to be made suitable for painting, one for marble to be suited either for a harder or coarser stone or for terra cotta, one for outside decoration to be adapted to interior decoration, a painted design adapted to stencil, one for stone adapted to wood or to repoussé or cast iron, one in pottery to glass, &c. This is rank heresy to the half initiated, but it is thus that the styles have grown. The marble temples of the Greeks are of the wooden temples which preceded them, sculptured ornament grew out of painted or incised ornament, and each retains evidences of this growth. Nothing will better teach a student the special requirements of each material than this practice, and it will help him to avoid such errors as are seen in the following government manufactures:—Modern mosaics in Florence in imitation of paintings, one table of which costs 1000*l.* to make, and is not in any sense a work of art; tapestry in imitation of painting, with a result no better than a bad chromo-lithograph; painted tapestry in imitation of the textures and colours of worked tapestry; carpets with architectural ornaments large and shaded in relief, coarse scrolls, large shells, and violent contrasts of colour; and pottery made and decorated in a spirit out of harmony with the material.

A true knowledge of historic art should temper our prejudice for or against any particular style, should loose somewhat the bonds of precedent, and cause us, instead of being contented with imitating the work of past ages, to imitate the spirit of the workers in all periods who added, each in his century and

day, some new vision of beauty, never staying to think whether it were orthodox.

This wider view of the styles would save the work of to-day from unsuited and imaginary construction,—from the miles of expressionless acanthus,—the unvaried Early English capital and foliage,—and the picturesque, realistic jumble of musical instruments, vases, armour, masks, common objects, &c., originally used as symbols, but too often in the later periods of the Renaissance Decline strung together without any earnest thought of or care for style; and repeated with still less meaning in the work of the present day.

A very necessary stimulus to the student is the carrying out of some of his designs; fortunately this can be carried on within certain limits in the school, and will help forward the union of craftsman and designer. Not only is constantly designing exhaustive work, and disheartening too, unless some of these designs are carried out, but in many cases the design itself can hardly be said to be completed until it is executed in the material for which it is intended; and the difficulties and limits of the material are not so often hindrances as they are stimulants to new thoughts. The processes which are most nearly allied to the ordinary studies in technique are painting or stencilling of doors, panels for mantelpieces, piano fronts, or the decoration of spaces on walls, painting of fans on silk, vellum, &c. The working of embroidery borders would only require a little technical experience; and etching of ornamental designs on copper, zinc, or brass, for door plates, panels, frames, vases, lamps, &c., can easily be learnt and carried on in a school. This latter process is simply covering the metal with a thin coating of wax on which a tracing of the design can be laid; the outline and the ground or pattern being then marked into the wax with a needle point, and afterwards bitten into the metal with acid. This process is technically the easiest to acquire of any of the arts. Encaustic painting on plates, panels, tiles,

vases, &c., can be executed on the dry biscuit ware by using oil colours mixed with warm wax and when finished heated in a kitchen oven, the heat of which is sufficient to fuse the colours. The ware being then covered slightly with the wax and briskly rubbed, it will be similar as to method to the encaustic pottery of the Greeks. Modelling of terra cotta for baking (brackets, stands, relief tiles, panels, &c.) is very similar to ordinary modelling, the special technical difficulty to be overcome being the building up of the clay very firmly into a homogeneous texture throughout to the exclusion of air bubbles which would cause it to fly to pieces or to shrink unevenly, and thus warp in the baking. Tiles in very low relief may also be executed in potter's clay, sent to a pottery to be baked, and afterwards glazed with a coloured glaze, which running unevenly among the depressed and raised surfaces, gives variety and emphasis to the colour. Much may be easily done by painting and slightly modelling with white slip (moistened clay) on unbaked tiles or other forms made of a tinted clay, or *vice versa*. Gesso, which may be described as painting in relief in plaster, water, and glue, to be afterwards painted on in oil colour, is a revived art not difficult to learn ; also the carving in plaster and in chalk, which latter afterwards hardens by exposure, and can be made still harder on the surface by a silicate spray. Under-glaze ornamental painting of pottery, enamelling on metal, wood carving, &c., are arts which do not offer insurmountable obstacles, while filagree and repoussé work are not so difficult technically, as to prevent enough power being readily acquired to reproduce ornamental designs.

The very technical excellence of our workmen in repoussé has stood in the way of its artistic development, besides adding enormously to its cost. Repoussé work, which in its half finished stage is artistic, is often so overworked as to resemble cast brass, and the same error runs through nearly all manufactures arising from attempts to hide instead of displaying the process, and

from this display obtaining artistic results. It is seen in the elaboration of hand painting on china, so marvellously well executed in exactness of repeat as to be mistaken for printed ware; cloisonné enamel, made so smooth as to look like painted pottery, to the sacrifice of the richness and variety of hue which arise from leaving some of the inequalities of vitrification; wrought iron, so elaborate and so closely imitating nature as to destroy all evidence of the hammering process; and wood and stone carving, sand-papered so as to destroy the marks of the tools and character at the same time.

This brings us back to a statement made in the early part of this book, as to the waste arising from the possession of technical skill in art processes without a corresponding art knowledge, power, and feeling, to guide this mechanical skill. There is much of both now in the country, but they are at present kept apart and both are thus wasted. The Art Department has found enough work in the past to spread abroad this art knowledge, and to direct the acquirement of executive art power, but the time has surely arrived when this fusion of these with many art processes may be fostered in all our schools of art. At present they are, by the regulations, kept apart, with two remarkable exceptions. The technique of the painter and the modeller is fostered by every means, but all other technique which may be taught goes unrecognised. A few spasmodic efforts have been made, and with good results, at the Training School at South Kensington, notably in etching, enamelling, mosaic, and scrafito; but this class of work is not allowed to be recognised if done in any other school of art. There are, certainly, difficulties in the way of this recognition, but they are not insurmountable. It is to be hoped that the present cry for technical education will result in this union.

London: Printed by Strangeways & Sons, Tower Street, Cambridge Circus, W.C.